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ORIGINAL ARTICLES.

ADDRESS ON THE THERAPEUTIC OUTLOOK IN PEDIATRICS.¹

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WITHOUT much argument, I think we will agree that the highest branch of medicine is therapeutics. The ultimate object of all our study and experiment is to relieve suffering and to prolong life. The general opinion, however, prevails, and I think is borne out by facts, that in internal medicine, at least, advances in therapeutics have not kept pace with the progress of knowledge in etiology, pathology and diagnosis. Into the reasons for this we need not now stop to inquire; but it is certainly true that in no department of medicine does tradition still hold sway as it does in the medical treatment of the sick.

The brilliant results of our few specific remedies for disease, such as diphtheria antitoxin, and the thyroid extract for cretinism, seem to have fairly carried us away in our search for specific remedies for all diseases, especially for the acute infections, and nothing else appeared for a time to be much worth while. But we have proceeded far enough already to make it plain that such short cuts in therapeutics are to be the exception, not the rule. In most diseased conditions, certainly in all chronic ones, the best results will be achieved only by patiently and intelligently applying our better understanding of physiology and hygiene, and our newly-gained knowledge in physiological chemistry.

As was to have been expected, disappointment followed the trial of one after another of a series of vaunted specifics. It is evident that we must wait some time yet before therapeutics is brought to the exactness of pure science. To be sure, we are gradually but steadily outgrowing the old idea that disease is cured by drugs. But what has taken its place? With some, perhaps with most, has come the belief that unless the condition is one amenable to surgery, treatment really amounts to very little. Personally I have little sympathy with this opinion. I believe that the results in most cases of a purely medical character with which we have to deal are determined in large measure by the management that the case receives.

In the treatment of sick children, at least, there are two subjects which are only beginning to be understood, but whose importance it is difficult to overestimate. I refer to dietetics and

general hygiene. We may perhaps think of these as measures of prophylaxis, and so indeed they are; but if they aid in preventing disease, they are even more valuable in restoring to health those who fall ill. The nutrition of the growing child, whether sick or well, should be the first concern of the physician to whose care young lives are entrusted. Nutrition is influenced mainly by diet and hygiene. Just here is the emphasis to be put in modern pediatrics, and it is to the importance of these subjects that I wish especially to call your attention.

To begin with dietetics: We are familiar with the large part that infant-feeding plays in the health of infancy and childhood. This subject has been so much and so well discussed that it need not be enlarged upon here. With the steady decline of maternal nursing, infant-feeding has become one of the great problems of our time. The general principles have now been pretty well worked out; what is needed is a wider knowledge and more intelligent application of them by the profession as a whole. As well expect grapes from thorns or figs from thistles, as healthy children reared in defiance of the rules of physiology on foods lacking the essentials of normal nutrition, like most of the proprietary foods on the market.

It is, however, with the feeding of sick children that I am now particularly concerned. The necessity of treating disorders of digestion in infants by changes in food rather than by medicine is not sufficiently appreciated. In most such disturbances the cause is the food and only the food, whether the patient be a nursing infant or one artificially fed. To find out the particular element in the food that has disturbed the normal chemistry of digestion is the first step in the treatment.

As an illustration, let me cite the case of a young mother who was nursing her infant entirely. For the first few months the gain was rapid; then the bowels became loose; stools first yellow, afterwards green, and at times reaching the number of six to eight a day. The grandfather, a surgeon of renown, and in his early years a family physician of large experience, said to the young physician who had charge of the infant, "I do not wish to dictate, but in my day a baby with stools like that got calomel." The suggestion was not followed, but an examination of the mother's milk was made, revealing the existence of a fat content over 7 per cent. The explanation of the diarrhea was now clear. The milk acted upon the child's bowels like a cathartic. The green stools were simply an evidence of the rapidity with which the intestinal contents were being hurried

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through the bowels. Attention to the mother's diet and régime and the substitution of part bottle feeding with a milk containing a very low fat percentage gradually brought about a normal condition of the bowels, and the mother was able to continue nursing successfully. The grandfather, it may be said in passing, was quite convinced that the treatment of children had advanced since his day.

Another mother nursed her infant successfully for five months, the only abnormal symptoms being that the stools were rather freer than normal, although in character not particularly bad. A sister of the mother now became seriously ill; hopelessly so it was soon learned. Instead of six or eight ounces as previously, the nursing baby now gained only an ounce or two a week. The stools became more frequent and showed curds, afterwards mucus in considerable amount. There was much intestinal flatulence, and at times colic. A full chemical examination of the milk was not made in this case, but the symptoms pointed unmistakably to a mild intestinal catarrh, from excessively high proteids. This condition was evidently due to the worry and anxiety of the mother. Breast feeding was stopped entirely for two days as an experiment, and the child, put upon a weak mixture of cow's milk; fat, 2 per cent.; sugar, 6 per cent.; proteids, .75 per cent. Marked improvement immediately followed. The breast and the bottle were then given alternately, but the intestinal symptoms returned as soon as even this amount of nursing was allowed. The cause of the disturbance of the mother's milk being one that could not be removed, it was deemed best, even though her supply was abundant, to discontinue nursing altogether. Within three days the stools became smooth and yellow and of normal frequency, and the mucus disappeared. Artificial feeding was continued afterward with steady, uneventful progress.

The futility of treating cases like those mentioned by drugs is the point that I wish to impress. I often see cases of this kind which had been treated by diarrhea mixtures for weeks without the slightest benefit; yet immediate improvement followed a change in diet, simply for the reason that the cause of the disturbance, the improper food, was now removed.

Most infants are born with healthy digestive organs, and the greater part of those chronic digestive troubles which are met with in practice are the direct result of bad management in feeding on the part of the mother, nurse or physician. I feel sure that every one of large experience in the treatment of sick children will bear me out in this statement. In such disorders we must think of diet not as an adjuvant to treatment, but as the essential treatment.

Attacks of acute indigestion in infants must be managed according to dietetic rules. While chronic or habitual indigestion has reference generally to one special element of the food—the

fats, the carbohydrates or the proteids—in attacks of acute indigestion, all forms of food are alike injurious, and for the time it is imperative that all be stopped. I often tell my patients that there is one sovereign remedy for acute indigestion, and only one, viz., starvation. But this is not necessary for very long, and much judgment and experience are required in returning to a normal diet. It should be remembered that the carbohydrates are the elements most easily digested, and hence these may be used soonest and in the largest proportion; that considerable difficulty exists with the fats and that much aid may be afforded in the digestion of the difficult proteids by partial predigestion; also by the removal of the casein from milk by precipitation, as in the use of whey. The same principles apply with equal force to feeding during acute disease, especially the acute febrile diseases.

The step from disorders of digestion, whether acute or chronic, to acute infections of the gastrointestinal tract is but a short one. Whether the majority of these infections come from without or whether they arise in the intestine, we must admit the great importance of acute indigestion as a predisposing condition, or as the first step in the pathological process. An intestine filled with a mass of food which has not been or cannot be digested furnishes the most favorable conditions for the development of any pathogenic germs which may be there present. From this source arise our acute toxemias and acute intestinal inflammations. I do not desire to enter here fully into a discussion of the pathological side of this question, but only to consider the general principles of treatment, especially the dietetic treatment.

As a primary condition, then, we have almost complete arrest of digestion of all kinds of food—carbohydrates, fats and proteids. The introduction at this time of any form of food only serves to increase the intestinal disorder. At a later stage, when food is allowed, two elements must be carefully avoided: first, the fats, because they are absorbed with difficulty in any catarrhal condition of the bowel, and as in consequence they are likely to pass through the intestine like a cathartic; secondly, the milk proteids, because they are digested almost entirely in the intestine, because their digestion is particularly difficult in infants, and because from their decomposition active poisons are certain to develop. For these reasons, milk, particularly cow's milk, must be withheld for a considerable time. The only food at first advisable, therefore, is in the form of carbohydrates, either as sugars or starches, and, in some cases, animal broths. The mistake is usually made of feeding these infants too much and too early, not appreciating how long it takes for the organs of digestion to recover sufficiently to do their work.

Water in abundance is essential. The drain from the tissues through the fluid movements is very great, and water must be supplied freely

and at all times. The only limit to the amount given should be the condition of the stomach; unless there is vomiting, one may safely allow the child to take almost as much water as he will. It is surprising, if water is allowed, how little these children seem to mind the deprivation of food, even for several days.

By these means, combined with the intelligent use of evacuants—cathartics, stomach washing and intestinal irrigation—we are to assist Nature, who is doing her part in a wonderful way to overcome the disorder; taking away appetite to prevent food from being ingested; removing the offending agents by vomiting, and through quickened peristalsis and increased secretions; protecting the irritated and inflamed membrane with a secretion of mucus, and neutralizing irritant, acid poisons by a copious secretion of an alkaline serum from the blood.

The third important indication is complete rest. First, as already pointed out, to the digestive organs; and secondly, to the child generally. Since the body is starving temporarily, because of the cutting off of all food, the output of physical energy should be the least possible. Rest should be absolute. Exercise or exertion of any kind not only increases the body waste, but tends to stimulate abnormal intestinal peristalsis.

These, then, are the essential conditions to be fulfilled in acute intestinal infections. Evacuants, diet, rest, water. In comparison with these measures, the use of the various diarrhea mixtures is a matter of secondary importance; aye, more than this, most of them do positive harm.

In the chronic disturbances of digestion, in children who have passed beyond the age of infancy, careful dietetic treatment is not only desirable, it is really the only treatment that accomplishes anything permanent.

A typical condition is that of a child three or four years old suffering from habitual flatulence, occasional abdominal pains, moderate tympanites and mucus in the stools, which are sometimes constipated and sometimes loose. This is a familiar picture which we term chronic intestinal indigestion, with secondary catarrh of the colon of a mild character. We see these symptoms in all degrees of severity. In the most marked types, the general nutrition has suffered profoundly. There is anemia, a loss of weight amounting sometimes to emaciation, and almost any nervous symptom that can be imagined may be present. The diagnosis of abdominal tuberculosis is often made on account of the enlarged abdomen, with the constitutional symptoms just mentioned.

The plan of treatment very often followed is frequent intestinal irrigation and internally the use of various intestinal antiseptics, while fruits or cream or malted foods are given to overcome the habitual constipation. Most of these measures I believe to be without value and several of them very injurious. Unless there are serious lesions present, such as extreme dilatation of the colon, or intestinal ulceration, I have seldom seen

one of these cases which was not cured completely by careful dietetic treatment, aided only by general hygiene.

Not only must a proper diet be given, it must in most cases be continued for a long time before any material benefit is seen. This forms one of the principal difficulties in treatment, viz., to hold the patient to the exclusive diet long enough to gain permanent results. In most of these cases fats in any form, especially cream, are badly borne. In a recent case of my own, an analysis showed that 65 per cent. of the solids of the feces consisted of fat. The marked tympanites present is usually due chiefly to excessive fermentation in the carbohydrates. In fact, the condition is often brought about by the early and excessive use of carbohydrates, generally in the form of starchy foods. These elements must, therefore, for a time, be entirely omitted, or given in very small quantities. In severe cases, skimmed milk, often best given partially peptonized, with the addition of rare beef, has afforded me in the beginning more satisfaction than any other articles of diet.

But not soon do organs long deranged by maltreatment begin to perform their functions normally. Months are sometimes necessary before anything permanent in the direction of improvement is seen, and during this period the closest observation of weight, stools and other symptoms is necessary. Relapses come easily. One of my patients who had just begun to gain weight after three months of great effort on my part, went to her country home and passed again into the hands of her old physician, who said, "Her nutrition is poor; she must be fed up." And so he began the feeding-up process, which consisted in adding to the diet the very articles which had been so carefully excluded: cream, potatoes, rice and bread. The result was an acute relapse, which nearly cost the child her life. Another long period of months was required before the effects of this mistake had entirely passed away. At the age of four years this little girl weighed only 21 pounds, with her clothes. But now the régime began to tell, and once started, her progress was uninterrupted. During the next year and a half she gained 18 pounds in weight, and at the end of the time was entirely well.

In no group of diseases is a study of the conditions of nutrition more important than in the neuroses of children. These common nervous disturbances of early life, excessive nervousness, insomnia, night terrors, habit spasm, chorea, convulsions, hysteria, enuresis and neurasthenia, almost invariably have their origin in a disordered nutrition, depending upon improper diet and a faulty régime. The faulty régime should perhaps be placed first, in these cases, as it is often the chief factor. It is absolutely futile to think that we can cure these patients simply by giving them drugs. Still, one finds that the dependence upon internal medication to be the chief resource

of the great body of the profession in these conditions. Thus, children with chorea, week after week, receive arsenic in full doses, with only the most meager suggestions to parents as to how the child is to live. When the most important thing in the case may be to stop tea or coffee; to send the girl to bed at seven o'clock instead of allowing her to sit up until ten; to stop school entirely, even though it involves the sacrifice of a hard-won position at the head of the class; to eat simple food, at regular times, instead of trash of all descriptions and at all times; to have regular hours for recreation and opportunity for fresh air, and not to have every hour out of school filled with some other definite engagement, like French, or music, or other classes. No amount of Fowler's solution can be expected to benefit unless these basic conditions are corrected and a proper life for a normal child is established. As physicians, we make a great mistake in the lack of definiteness of directions which we give to parents and nurses in these conditions. We forget how little they appreciate where the fault really lies, and that they still hug the delusion that children who are not well require medicine as the essential condition of recovery and that all else is of secondary importance, or of no importance even.

What has been said about chorea may be repeated regarding attacks of convulsions. The child who has such attacks several times in a year is familiar to the general practitioner. I see many such every year, and what always surprises me is the regularity with which the bromide treatment has been followed with most of them. Few of these children have epilepsy at the time, or subsequently develop it. In the great majority of cases the attacks of convulsions are due to digestive disorders and consequent disturbances of nutrition, and when once a proper diet has been carried into effect, the chronic constipation overcome and a suitable régime inaugurated, we regularly see these attacks lessening in frequency and severity, and in a great majority entirely disappear. Drugs given for the purpose of directly affecting the convulsions have been, in my experience, absolutely without advantage, except possibly on the day of the attack or the one following, and in most cases by the disturbance of digestion which they have produced has resulted in much harm.

Besides the children who have regular attacks of chorea or convulsions, there is a very large group who have ill-defined nervous seizures, which are hard to classify. Some of these depend upon organic disease of the nervous centers, and are, therefore, hopeless; but very many also are purely functional and are connected with some disorder of nutrition. The diagnosis may not always be clear, but the therapeutic indication is generally very definite, viz., to consider the nutritive condition as the essential one until some new light appears.

Before leaving this branch of my subject I wish to say a word regarding children suffering from enuresis. This condition should be classed among the neuroses of childhood, for, in the great majority of cases, it is just this and nothing more. Some cases there are which resist all treatment and ultimately yield to time alone; but most children with this habit are greatly improved or entirely relieved by solving the problem of normal nutrition and general hygiene.

In all the large class of disorders just mentioned, it is necessary that the physician go carefully into the minutest detail of the child's daily life; the character and quantity of food, even its manner of preparation and the way in which it is eaten; the amount of water given; the nature and amount of exercise and recreation; the hours at school, of study at home, of rest and of sleep; the condition of the bowels; the character of the stools, and the urine. These are the fundamental and vital things which must be known at the outset. When grave mistakes are found, as will almost always be the case, they must be corrected and faulty conditions removed, if we would substitute normal physiological action of the digestive organs and nervous system for the abnormal ones which have grown up in consequence of a defiance of the laws of health. This takes time and patience on the part of the physician and requires a certain amount of cooperation on the part of the parent, which I may say I have seldom failed to secure from people who were at all intelligent. Following the plan mentioned, it is most gratifying to see what results can be obtained with such patients. I may say that none have given me greater satisfaction in practice.

Turning now from chronic to acute conditions, what is the position of the intelligent physician with reference to sick children? Is not his duty like that of the ship's captain in the storm? He cannot stop the gale, but he can steer the ship. In stress of weather, a good seaman looks closely after his entire vessel. Even the smallest detail does not escape him in the working of the engine, boilers, steering-gear and all machinery. So should the intelligent physician do in any serious acute illness. It is his duty to endeavor by constant watchfulness to guide the patient through the many dangers which threaten; by constant attention to see that heart, lungs, liver, kidneys, stomach and intestines are all doing their work easily and well, and that they are not hampered in it by something which he can remove or control. When the normal functions of elimination can be continued and the nutrition of the body maintained, there seems to be almost no limit to the degree of toxæmia which can be resisted.

Let me illustrate by considering somewhat in detail the management of our most frequent acute disease, pneumonia. Coming to the bedside of a child with this disease, the question a physician should ask himself is, What can I do for this child to enable him best to hold out against his

existing infection and ward off the especial dangers with which he is threatened? Inflammation of the lungs is the local reaction to the infection—Nature's method of restricting the action of the bacterial cause of the disease. Now, simply because the body is battling against such a foe is no reason why we should give drugs. There is much doubt regarding the benefit to be derived from the use of our various expectorant remedies; but there is no doubt regarding the disturbance of the stomach which they cause when given to young children. In this condition digestion is feeble at best. Let us, therefore, not interfere with it by giving a single unnecessary dose of medicine.

What are really the vital things? Surely to see to it that the body is put under the best possible conditions for natural resistance. First comes the question of a supply of pure air; never so much needed as now. It is all but universally agreed that this is the most important thing to be secured, and yet how do we see this ignored in practice. Even when there is no necessity for it we see children, sick with pneumonia, confined in small, close, ill-ventilated rooms, the air of which is continually contaminated by the breath of superfluous inmates, gas lights and even gas stoves. I have repeatedly seen the exclusion of air carried to a point of stopping the cracks about windows and doors with cotton, cutting off thus the only possible source of oxygen. The temperature of the room in lobar pneumonia seems to me to make very little difference. While I see no advantage in allowing the room temperature to fall as low as 50° or 55° F., I see no objection to it. Pure air in plenty is the essential. But in bronchopneumonia, particularly if the patient is an infant under a year old, such low temperatures are not well borne; in my experience, they increase both the cough and the dyspnea. Fresh air that is not cold is the great thing to be desired, and often is best secured if we can use two rooms alternately, each being aired, then warmed, before it is occupied. Draughts cannot be wholly ignored, but can easily be avoided by screens and by properly placing the child's bed in the room. Of great importance is the amount of air space which shall be allowed to every pneumonic patient. In hospital practice especially must this be considered, for nothing increases so much the frequency and severity of complications as overcrowding.

The question of feeding comes next. It is not without reason that we see complete anorexia during the first few days of almost every severe acute illness. During this period to urge or to force food is almost always to do harm. If food is taken it is not digested and only adds to the child's discomfort, causing vomiting or abdominal distention from intestinal fermentation. Marked tympanites by crowding upward on the diaphragm greatly embarrasses respiration and increases the dyspnea. Throughout the disease, the feeding becomes one of the most important

matters; food in such form and quantity as to nourish the body and yet not to tax the organs of digestion, only such quantities as can be digested, with no excess for intestinal putrefaction. This requires care, thought and judgment. The general mistake, I think, is to overdo the matter of feeding, especially in the most severe cases. Resulting attacks of acute indigestion are very common and often very serious, and may turn the scale against the patient. Though food must be limited in the beginning, and sometimes throughout the disease, scarcely any limit can be set to the amount of water which may be given to advantage. The kidneys are undoubtedly our principal means of eliminating toxins in all forms of acute infection, and their activity is aided by nothing so much as water, early and often. It may be given in many ways. Some infants will not touch plain water, but will take a very greatly diluted food. Some older children will take water as a weak lemonade who will not touch it otherwise. If an irritable condition of the stomach forbids the use of water by the mouth, large rectal saline injections should be given two or three times a day.

As a third essential in treatment I would place rest, often most difficult to secure, particularly if the patient is a nervous, fretful or spoiled child; but with such every unnecessary disturbance should be avoided. Physical examinations should be made no oftener than is absolutely necessary. Local applications of every form, whether for the reduction of temperature or the relief of pain, frequently do more harm than good. Such children, when they are seriously sick, crave to be let alone. They are often much injured by conscientious but ill-advised attention. The wear and tear upon the highly wrought nervous system, even by our most approved therapeutic measures, is something that we do not always justly appreciate. If we cannot help, let us at least not add to their sources of discomfort.

The measures above discussed in the treatment of pneumonia include what I should call the hygienic treatment of the disease. I believe it to be much more important than anything else; not that antipyretic measures, stimulants and nerve sedatives are not at times useful. I surely would not think of throwing them utterly to the winds; but as at present used, I do think that they do a great deal of harm. The emphasis, surely, should not be made upon them, and let us not deceive ourselves into thinking that we have cured pneumonia by them.

Yet how often do we hear from parents, "Yes, yes, these things which you have told us to do for our child are all very well; but, Doctor, what are you going to do for the pneumonia? Isn't there something that we can give for that?" Then it becomes necessary to confess that we have at present no remedy for this disease, and we should explain that if we can only take good care of the child, the child will take care of the

disease. If parents are intelligent they will see it; if they are not it may be necessary to placate them by some harmless medication.

Before leaving the subject of pneumonia, I would like to say a word regarding the cases of protracted, persistent or unresolved pneumonia—by whatever term we may choose to call it. In most cases the reason the process does not stop and the lungs clear up is because the child's general nutrition is so poor. Measures directed to improvement in this, by fresh air, careful feeding and often a change of air, are the only means by which recovery is reached.

I have gone somewhat into detail in the treatment of pneumonia. The same things, in almost the same words, might be said of typhoid fever, and in fact of most of our specific acute infections. It is the patient, not the disease, that we are to treat. Let us get rid of the notion that because the child is ill he requires medicine if he is to get well; and above all let us not get in the habit of treating the thermometer nor even the name of the disease.

I have designed in these rather desultory remarks to lay before you what I believe to be the modern tendencies of pediatrics in therapeutics. I do not desire simply to enter another protest against unnecessary and indiscriminate drug-giving to sick children, although it is my belief that this is still an evil, and a great one. Much less do I wish to convey the impression that little or nothing can be done for sick children any way and that we would best leave them to Nature altogether. I am not a therapeutic nihilist, nor even a skeptic, except as to the action of most so-called specific remedies. My thought is that a better understanding of disease and a broader knowledge of children point the way very definitely and clearly. Our greatest need to-day, I believe, is a more scientific and intelligent knowledge of practical dietetics, and a better understanding of the conditions of health and growth. We must realize that in every acute disease and chronic disorder it is of the first importance that we should have a knowledge of how we may best preserve the nutrition of the body and thus get the advantage of Nature's wonderful powers of recuperation in early life.

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The Fat of Oil Injected Subcutaneously.—An important investigation on the nature of the utilization of fat when injected subcutaneously was performed with interesting results by Y. HENDERSON and E. F. CHORVITZ (*Am. Jour. Physiol.*, Sept. 1, 1905), who found that oil injected subcutaneously is readily and widely distributed through the subcutaneous spaces. Such as is not, however, transformed *in situ* into adipose tissue. In fact the tissues react to its presence as to any non-irritating foreign substance. In the blood, lymph, and milk it does not appear in any detectable amounts. While the oil is ultimately absorbed and utilized in metabolism, the process is extremely slow. Oil injections in any moderate amounts are, therefore, practically without nutritive value.

WANDERING GALL-STONES.

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LEAVING out of consideration cases in which there could be demonstrated no actual nor palpable rupture of the gall-bladder, but which presented gross evidence of an extension of the products of inflammation from the interior of the bladder to the neighboring tissues, such as adhesions, pus, etc., instances of indubitable perforation with escape of the contents of an inflamed gall-bladder are comparatively rare. Speaking of such cases at the recent meeting of the American Surgical Society, MacClaren, of St. Paul, noted as follows: Mayo Robson out of 539 operations on the gall-bladder and bile ducts found only 25 which could be fairly said to be perforations; Wm. F. Mayo in 328 cases found 16 perforations; Ochsner in 48 cases reported 1 perforation; MacClaren himself had 9 cases in 80 operations. Perforations invariably produce such inflammation in the abdominal cavity that as a rule very serious, frequently lethal, results follow. Granting a slow development of the ulceration, such strong adhesion may take place that, when the perforation does occur, the discharged contents of the gall-bladder may, for the time, be retained in a well-protected cavity and be localized almost as thoroughly as when they remained in the gall-bladder itself. If the patient survive the early effects of the septicemic condition which is produced by these inflammations, the abscesses which follow may burrow in the direction of least resistance, and if the case be let alone, and *the patient live*, these abscesses, with the pus, detritus and stones which they contain, may appear at almost any part of the posterior portion of the right abdomen. On account of the relative anatomy, however, these abscesses are apt to follow certain definite routes. The adhesive inflammation usually causes the pyloric end of the stomach, the duodenum, and the transverse colon to unite closely with the gall-bladder and the lower border of the liver, with the gastro-hepatic omentum interposed. This union is sometimes so dense that the pus and detritus find easier exit into the softened parenchyma of the liver, the gall-bladder is perforated above, and an abscess forms in the right lobe of the liver. In some instances stones are found at operation after many months of suffering, septicemia and recurrent attacks of violent pains, in the liver itself. I have had two such cases. If the ulceration occurs at the juxtaposition of gall-bladder and one of the intestines or stomach, the pus, stones, etc., will ultimately be discharged into the intestines, later to be passed out with the feces or to remain, as sometimes happens, in the form of an enterolith and block up the intestinal lumen. I have had one case of this kind. Rarely it happens that the ulceration takes place between or behind the adherent intestines and lesser omen-

tum; in this case the pus, etc., is discharged into the posterior part of the right abdomen. If this occurs suddenly before strong adhesions have formed, nothing but an immediate operation will save the patient's life. Most rarely of all a large abscess may form in the mass of adhesions about the gall-bladder, and by slow and gradual stages make its way downward into the abdominal cavity. On account of the dense adhesions which usually form anteriorly, this pus is most apt to burrow through the posterior and lower part of the investing sac and will then gradually descend along the posterior walls of the abdomen between the attachment of the mesentery and the right mesocolon, sometimes perforating the mesocolon and going back into the right renal fossa, or it may descend along the anterior surface of the psoas muscle and make a large pouch under and about Poupart's ligament after it has filled up the right iliac region. The two cases I shall presently describe to you I think illustrate each a form of this possible wandering of bilious pus and detritus. The gall-stones that accompany this sort of glacial descent may be found in almost any part of the posterior portion of the right abdominal cavity. I have called gall-stones thus carried some distance from the original position in the gall-bladder, *wandering* gall-stones.

The signs and symptoms which accompany these wandering gall-stones are: A tumor which usually presents all the manifestations of an abscess, though the exact character of the swelling may be masked by adherent coils of small intestines which may lie over it anteriorly; great pain, marked interference with the functions of the stomach and intestines; jaundice is usually present only in the earlier stages, and may be absent entirely. The general symptoms are those of septicemia.

It will be appreciated at once that the signs and symptoms are the same one finds in almost any of the serious intraperitoneal inflammations. It is therefore very easy to mistake this condition for an attack of suppurative appendicitis, pancreatitis or suppurative nephritis or pyelitis. Only by careful exclusion of other possible inflammations and a careful consideration of the earlier symptoms can one arrive at a correct diagnosis. If the pus has made its way through the skin at some part of the abdomen and a sinus exists, the character of the discharge may give one an inkling of the true state of things. Otherwise the diagnosis may be difficult and the condition a very misleading one.

The two cases I have to present as illustrations are as follows:

Case I.—Mrs. J. S., aged twenty-eight years. She was sent to me by Dr. Dickenshied, of Allentown. She is married but has no living children. She had been ailing for some time, though she gave no history of violent attacks of pain; never was jaundiced; has had indigestion and irregular bowels. Several weeks before I saw her she had

persistent abdominal pain, fever, and malaise. She gradually became worse and finally became so weak and ailing that she took to her bed. Her urine was scant and turbid. A swelling made its appearance on the right side of the abdomen below the border of the ribs; this swelling was very tender and produced a constant feeling of distention. Septicemic symptoms developed, and her stomach became very irritable. She was admitted to St. Luke's Hospital. Her condition was noted as follows: A pale, weak woman who seems in great pain. Her skin is pale and moist. Pupils normal, respiration rather short and somewhat hurried, pulse 100 and rather weak, temperature 102.4° F. Heart and lungs normal, liver dulness on right continuous with the tumor, left lobe not enlarged, spleen negative. Urine straw-colored, normal odor, acid reaction, sp. gr. 1.022, albumin and sugar absent; microscopically negative. She complains of great pain in the right side of the abdomen, especially to the right of the umbilicus in the right lumbar region. There is a large tumor reaching from the right hypochondriac region to the right anterior superior iliac spine and extending back into the right lumbar region, it reaches nearly to the middle line of the abdomen. The tumor is elastic to the touch, dull on percussion, no fluctuation can be elicited, no friction sounds heard over it, no special tenderness except in the epigastric region; abdomen somewhat distended. She had just finished menstruating; the period was normal. Pelvic organs normal. She is constipated; appetite very poor. There was evidently a collection of fluid just under the abdominal walls occupying the right lumbar region chiefly. The day after her admission into the hospital, under ether anesthesia an exploratory incision was made through the anterior abdominal walls, external to the rectus muscle. Just within the abdominal cavity a large sac was opened from which gushed a quantity of seropurulent fluid that had neither a characteristic color nor odor, and which showed under examination only pus cells, broken down epithelial and connective tissue cells, red and white blood corpuscles. The index finger introduced into the cavity found that it reached far back into the right lumbar region, that it extended from the lower extremity of the right kidney to the crest of the ileum. It was smooth within and seemed to contain absolutely nothing but the thin sero-pus. Apparently it did not reach to the border of the liver, and it was firmly adherent to the surrounding organs and tissues. A counter opening was made into the lumbar region, a large rubber drainage tube was introduced through this opening, the cavity thoroughly washed out, and the anterior incision closed by sutures.

The woman's general condition improved at once; the anterior wound healed rapidly. The tube was retained in the posterior opening for about three weeks, when there was so little discharge it was left out. The discharge was puru-

lent and watery, and at no time gave any suggestion by color or otherwise of bile. After four weeks the woman was permitted to go home still having a small lumbar sinus which discharged a very little fluid. Her general condition was quite good.

For about a year I saw nothing more of the woman; then Dr. Dickenshied informed me that the lumbar sinus still persisted and occasionally there was considerable pus. I again made a careful examination of the patient. The sinus led into a sac which seemed attached to the right kidney, to the ascending colon, and to the abdominal walls. It did not extend as far as the liver above; the discharge was entirely colorless and seemed so thin and watery that I came to the conclusion that it had been a perinephritic abscess and that it had been caused by a renal calculus or inflammatory occlusion of the right ureter, and that it would be necessary to incise and perhaps entirely remove the right kidney in order to cure it. Accordingly I proposed another exploration, and removal of the kidney if necessary. Dr. Dickenshied agreed, and the woman and her husband decided to have the operation. About eighteen months after the first operation she again entered the hospital. I made an incision through the right lumbar region, using the sinus as a guide. After getting through the lumbar fascia I found that the sinus led almost directly inward toward the umbilical region, and shortly my exploring probe came upon a hard object, which proved to be a stone; this was at the bottom of the sinus and was reached by the probe without pushing it through the tissue and without any incision of the deep tissues; it simply lay in a small cavity at the bottom of the sinus. A little widening of the sinus by upper and lower incisions enabled me to pass in a pair of forceps, to grasp and remove the stone, which is, as you see, about the size of a pigeon's egg. Immediately upon the removal of the stone there was a discharge of bile from the depths of the sac. The stone had acted as a ball valve which effectually blocked up the opening that communicated with the ulcerated gall-bladder. The stone seems to have lodged in the folds of the mesocolon just above the cecum and was retained in a small cavity by a strong sac of investing fibrous tissue. The pus had burrowed through the mesocolon and had entered the renal fossa back of the parietal peritoneum. A tube was introduced after carefully washing out the sac. The woman made an uninterrupted and rapid recovery and the sinus soon closed permanently.

Case II.—Mrs. O., a widow, seventy years old. Three years ago she had typhoid fever; a year ago her present illness began. She had a violent attack of pain, vomiting, constipation and fever. Soon afterward a very sensitive swelling made its appearance in the right iliac region. Her physician thought she had an attack of appendicitis. Operation was postponed; the patient fell into a profound septicemic condition. The swell-

ing got lower and more superficial and finally the skin ruptured and a large quantity of thick pus was discharged through an opening just above Poupart's ligament. There had not been any jaundice during her last attack, but close questioning elicited the fact that three years ago when she had typhoid fever she had pain in the upper part of the abdomen and had been slightly jaundiced. After this she had been comparatively well until the severe illness a year ago. When she consulted me there was a wretched condition of affairs. The woman weighed only about 90 pounds, though she had a large frame; she was excessively weak, of a cachectic color, pulse weak but not rapid, 88 per minute; from her account evidently she had had evening fevers and sweats. Examination showed the skin of the whole lower zone of the abdomen undermined by pus; a large, ragged opening in the left iliac region communicated with a flat abscess cavity under the skin which extended from one anterior superior iliac spine entirely across the lower zone of the abdomen to the other iliac region; this opening also led by a long, tortuous sinus into the abdomen, following along the iliac planes upward and inward. Evidently it communicated with a large abscess cavity in the posterior inner part of the right abdomen. There was continuous dulness from the thorax to the base of the anterior superior spine of the ilium on the right side; this consolidation involved the whole right side of the abdomen. In my manipulations I evidently displaced some obstructing tissue (a slough), for, a short time after I withdrew the probe there was a discharge of bile from the opening. This had not been evident at all before; the pus had been quite colorless, though thick and very abundant. The appearance of the bile of course indicated the probable origin of the abscess. The woman was sent to St. Luke's Hospital, where under ether anesthesia, after thoroughly curetting the lining and walls of the external abscess in the anterior abdominal walls, and packing the cavity with iodoform gauze, an incision was made upward through the abdominal walls, using the sinus as a guide; the depth of the abscess was finally located to the right of the second lumbar vertebra under the coils of the small intestines and to the inside of the mesocolon. In a large mass of detritus and a quantity of pus two large stones were found which are each almost as large as a mandarin orange and aggregate 65 grams in weight. Besides these a number of small stones were found. When the stones were removed quite a copious discharge of bile followed. The cavity was so near the renal vessels and the ascending vena cava that very little curetting could be practised. The cavity was cleared out, however, as thoroughly as practicable, it was douched with a hot 1 per cent. saline solution, and a drain introduced.

The woman began to improve at once after the operation. The external abscess healed

rapidly, the deep internal one went very slowly. After a week, when it had very markedly contracted, there began to be a discharge of sour smelling fecal matter and a quantity of thin fluid which excoriated the surface of the skin. The feces came from the duodenum and the fluid was chiefly pancreatic fluid, as subsequent examinations showed. Notwithstanding this discharge the woman rapidly improved, took on flesh and her general well-being seemed almost entirely restored. The abscess cavity slowly contracted until apparently nothing was left but a small sinus, which discharged a small quantity of fecal matter daily and also some pancreatic juice. She remained in the hospital a little more than three months. She was then allowed to go home and ordered to report from time to time at the hospital.

The sinus remained and continued to discharge, but the old lady was in excellent health for about a year when, after some indiscretions in eating, she developed some intestinal obstruction symptoms and again entered the hospital. She seemed to be strong and well; she weighed 140 pounds, more than she ever did before in her life, and she said until the pain and distention of the abdomen and obstinate constipation appeared she was very well. Examination showed a small round opening at the junction of the right iliac and hypogastric regions; this led into a sinus which went upward to about the level of the second lumbar vertebra into the right side of the umbilical region. Very little discharge could make its way through the narrowed opening; the opening was enlarged and the sinus dilated. A free discharge of thin fecal matter and a clear fluid occurred. She was relieved at once, and after five days she was discharged in good condition and has remained so, as far as I know, up to the present time.

The question of whether or not it would be practicable to close the opening into the duodenum came up several times. I decided, however, that it would be best not to attempt it. The woman was seventy years old; she was comparatively comfortable, and though she did have a fecal fistula she could easily attend to it herself, and as the intestine was ulcerated so high up the odor of the feces was not very offensive. The excoriation of the skin by the pancreatic juice was the most annoying feature of the condition. Careful and systematic cleansing, and the free use of vaseline and subnitrate of bismuth powder over the skin immediately about the opening controlled this, however. The intestines were so matted together by adhesions that an attempt to reach the ulcer in the duodenal walls would have required a most tedious and perilous dissection and would undoubtedly have necessitated exsection of one or more lengths of the intestines, and the chance was that the woman would have been left in even a worse condition, *if she survived the operation*. I decided, therefore, not to attempt any closure of

the intestinal opening and to wait and see whether the opening might not finally close spontaneously. I think it has not closed, but the woman continues in good health.

The history of gall-stones has been so closely studied and so much has been written in late years concerning the immediate and remote effect of these pathological concretions that one hesitates to offer anything as absolutely new or original concerning them. I think, however, the possibilities as illustrated by the two cases I have related have not been clearly stated nor sufficiently emphasized. I venture, therefore, to call special attention to this rare condition in order to put on record my evidence of the fact that large gall-stones may ulcerate through the walls of an adherent gall-bladder and in a sort of glacial descent migrate to contiguous regions on the right side of the abdominal cavity. When these stones are small they are apt to find their way into the intestines, but when they are large they are retained in gradually descending abscess cavities formed by the adhesions of the intestines, the omentum, mesenteries and abdominal walls. These large abscesses are apt to be mistaken for other serious and, more common and better known, inflammatory conditions within the abdomen, and this fact should be remembered in differentiating suppurative conditions on the right side of the abdomen. In operating on abscesses deep down in the abdomen careful exploration should, if possible, be made of all the interstices of the sac in order to find out whether or not a wandering gall-stone is "at the bottom of it."

The sequence of pathological changes, as I understand them, is as follows:

(1) The development of the stones or stone in the gall-bladder. (2) An after-infection of the interior of the gall-bladder. (3) Suppuration and ulceration of the lining of the gall-bladder. (4) Coincident adhesions of the gall-bladder to the transverse colon, both omenta, and possibly to duodenum and mesocolon. (5) Perforation of the gall-bladder by extension of the ulceration; adhesions strong enough to resist the pressure of the escaping contents of the gall-bladder. (6) Encysting fibrous sac. (7) Gradual working downward of the abscess and contents.

Fortunately I am able to show you a gall-bladder which I exsected and which was just ready to be perforated and which was so firmly united to the transverse colon, etc., that I think the large stones it contained would have been retained in an abscess cavity and would soon have begun their career as wandering gall-stones.

A Munificent Gift to St. Francis Hospital.—Mrs. Greenhut, the wife of J. B. Greenhut, of the Siegel-Cooper firm, has just given fifty beds to this hospital. Some months ago one of Mrs. Greenhut's maids fell ill. She was so pleased with the care and attention they gave the maid that she desired to express her gratitude substantially.

CHRONIC RHEUMATISM.¹

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THE present seems a favorable time to direct the attention of all branches of our profession, the surgical no less than the medical, to the general subject of this large group of diseases, which for years have been the bane of the practitioner. Several reasons have contributed to our failure to come to any satisfactory conclusions with reference to these conditions. First and foremost of these reasons I believe is the chronic character of the trouble. Very few of us have the time or the patience to persist in the study of any chronic disease, and if we had, it is more than likely that the individuals upon whom we sought to prosecute such studies would lose patience long before we did. Tired of experimenting with the "regulars," they are prone to fall into the hands of charlatans, and I do not know that we can much blame them.

The second reason, and one for which the profession can justly be held more culpable, is that we have not given these diseases the careful clinical study that should have long ago put us in a position where we should have been compelled to institute pathological investigation upon these subjects and philosophize on the results of our clinical and pathological observations.

A third reason is that pathologic material has not been available for the study of these processes when they were in the acute stages—not until comparatively recently have surgeons been getting an opportunity to look in upon these lesions when the characteristic changes were developing. Pathologic material disclosing the end results of these processes is often very similar in gross microscopic appearances, and should not be used as the basis of any conclusions regarding the etiology of the diseases in question.

Fourthly, in such researches as have been made, the pathologist and the clinician have not worked together. I venture to say that if the character of a malignant growth were under consideration on the operating table we should accept as most valuable the opinion of the pathologist who tempered his opinions by his own or some one's else knowledge of the clinical course of the tumor. This same attitude should be maintained (but never has been) with reference to the study by pathologists of the rheumatoid diseases, and the clinician should also better his attitude toward the pathologist.

These four factors have contributed more than anything else, I fancy, to the general confusion regarding nomenclature, etiology, clinical history, pathology, and, consequently, treatment and prognosis, which has existed in the medical profession not merely for years and decades, but for generations and centuries, and it is high time for

us to join forces and formulate the ideas based on our experience. It is not merely on humanitarian grounds that such effort should be based. It is our aim to relieve suffering, prolong life, and contribute, through our professional activities, to the general progress and well-being of mankind, and I submit that there is no better way of doing this than by preventing, as far as we may have the ability, the development of crippling deformities. By so doing we save to the family, in the first instance oftentimes, its mainstay, and prevent in many cases a tax being imposed upon the community at large. The money value alone of a deformity prevented cannot be computed. It is, therefore, from a wider point of view than is applicable in many of the more acute diseases that I would interest you in the subject of chronic joint affections.

The terms "rheumatoid arthritis," "osteo arthritis," "arthritis deformans," "rheumatic gout," and "chronic rheumatism" convey to your minds a clinical picture of pretty much the same general type, no matter where or when you received your medical education. In the main and briefly, whatever term is used it signifies to your mind a "chronic polyarthritis," which may vary more or less in severity, mode of onset and clinical course, but in which all types possess in common the tendency to progress more or less steadily toward one goal, namely, crutches, a wheel chair, bed or some other stage of a chronic, more or less incapacitating, invalidism. If this generally accepted view of the meaning of these terms implied, beyond any reasonable doubt, that the etiology was the same, no matter what the name, that clinical symptoms and pathologic findings were practically identical, irrespective of nomenclature, and that no other results than those now being obtained were to be expected under whatever treatment, I grant you it would be a waste of time to try and fit any more satisfying names to the symptom-complex which we have been in the habit of recognizing as "arthritis deformans." If any one term were to be chosen expressing the feature common to all types without reference to any pathologic grounds of classification, the best, I think, would be "arthritis deformans," although that, being a very unscientific method of classification, would be poor enough.

Let us approach the subject then with the view of classifying these diseases on the basis, (1) of their etiology, (2) their clinical history, and (3) their pathology. The classification which I shall offer has not a wholly satisfying nomenclature, and is in no sense original, but it is based on a consideration of the data obtained from a study of the etiology, clinical history, and pathology of a large number of cases, and, though doubtless erroneous in many points, will, I think, afford us a working hypothesis for further study.

Applying the above mentioned principles, this large group of morbid conditions divides into

¹ Read at the Annual Meeting of the Penn. State Medical Society, held at Scranton, September 28, 1905.

three, viz., the infectious, the atrophic, and the hypertrophic. I will take them up in this order; first, therefore, comes the *Infectious*.

Etiologically considered we must group under this head all cases in which there is a bacteriological cause for arthritic symptoms, demonstrable by cultural methods or inferred because of a close analogy with other arthritic infections whose bacteriological basis has been established. This class would necessarily include that entity which we recognize as "acute articular rheumatism," all the joint affections which are secondary to foci in other parts of the body or follow on systematic diseases whose causative factor is an organism—as the exanthemata, puerperal sepsis, and pneumonia. It will include gonorrhea and syphilis where the syphilitic infection is in the form of a gumma in the joint and does not manifest itself through the central nervous system, as in Charcot's disease, and it also includes a number of the milder joint infections, commonly monarticular, which give rise to a chronic synovitis. Purely for purposes of convenience tuberculous arthritides will be excluded from this classification.

At once this grouping is open to challenge on the ground that in but few of these conditions can bacteria be definitely demonstrated. It is very difficult to demonstrate organisms in these low grade joint inflammations unless the joints can be opened and the most painstaking bacteriological methods followed out. The lesions thus produced, however, are characteristic of bacterial infection, and even though it may be impossible to demonstrate bacteria by smears or in the tissues or by cultural methods, still there would seem to be no reasonable ground to doubt their participation in the production of lesions which are like those known to have been caused by bacteria.

There are enough points common to infections, bearing in mind the variations in their types, to enable us to classify tuberculosis, for instance, as it manifests itself in the joints, without the necessity of a bacteriological demonstration in every case, enabling us to say that such and such a combination of signs means tuberculosis, or means gonorrhea, or means streptococcus, or means some other member of the great family of bacteria, independent of whether we are able to aspirate the joints in question, or even open them and obtain from smears the specific organisms themselves.

What are the evidences which make the infection responsible for these chronic arthritic conditions? In the first place, most of them have a definitely acute onset. The majority of cases are polyarticular at the start, and whereas one joint may *seem* to be severely attacked at the onset, it will speedily clear up and others remote from it will be attacked with exaggerated rigor. All joints involved become so, *as a rule*, in a much shorter time than in the non-infectious types. Acute pain, local heat

and tenderness, constitutional disturbances, and fever characterize most of the infectious arthritides. Often the source of infection can be found if sought for diligently. Sometimes the gastro-intestinal tract, at other times the middle ear, or one of the acute febrile diseases will give one a clue upon which to work. The patients are anemic, their blood generally showing a secondary anemia, the red corpuscles not materially diminished, but their carrying capacity for hemoglobin much lessened. General glandular enlargements are seen much more frequently in this type of arthritis than in the others. A persistently high pulse rate of eighty to one hundred, with a degree or a degree and one-half of temperature, is the rule even when the chronic stage of the infectious processes is well established. Cardiac complications are more frequent in the arthritides of infectious origin than in any other form. The distribution of the lesions throughout the articulations of the hand, for example, is much more general than is noted in the atrophic type. There is not apt to be a variation in the intensity of the process in the various joints as evidenced by the external appearances. When one analyzes still further he finds certain fine differences in the gross appearances which are worthy of careful attention. In most of the infections the capsular thickening, which is visible as well as palpable, is very symmetrical. The skin over the joint is apt to be more or less passively congested. In this type of arthritis there is usually less variability in the activity of the disease in the various joints affected. The reflex atrophy which follows an infectious arthritis is much less than that which follows the arthritides involving the bone and cartilage. In the severer types of infectious arthritis the atrophy is very marked. These, however, are cases in which bone or cartilage, or both, are involved. The tendency toward deformity is also less; luxations and subluxations being very rare, flexions being the rule where any deformity occurs other than that due to infiltration of the capsule.

There are, of course, certain notable exceptions to the general array of facts set down above, the most conspicuous being those which occur in the low grade monarticular infections. They are to be explained, however, on the ground of the variations in the intensity of the infections and are dependent upon the variety of organisms which are acting.

From the pathological point of view cases can be studied in three ways, namely, by means of the X-ray, from the pathological findings at operation, or by the results of the bacteriologist's research. The results derived from the X-ray examination are extremely helpful if the negatives are developed so as to bring out the soft parts particularly. In this way the thickened capsule with its villous changes can be very distinctly demonstrated and the absence of lesions in the bone and cartilage can be well

shown. Occasionally, as has been intimated before, the osseous tissues are the subject of erosions, but only in the severe infections, the most notable ones which the writer has observed being caused by the pneumococcus.

Incision into the affected joints for the purpose of surgical exploration reveals a very dense synovial lining, sometimes as much as one-half to three-fourths of an inch in thickness. This is uniformly infiltrated and the infiltration will sometimes be found to extend to the fibrous capsule and cause the two to adhere so as to be scarcely distinguishable. Fibrinous clots are apt to form in the joints; erosions and striation and loss of sheen in the cartilage are not commonly noted; mobility is interfered with because of the loss in flexibility of the joint membranes; crepitation is not common in the acute stage.

Atrophic Arthritis.—In selecting this term to describe the group of cases herein outlined, an attempt has been made to choose a name descriptive of some characteristic clinical or pathologic feature of the arthritis. In this case it describes both a clinical and a pathologic feature.

This is a disease which is unquestionably constitutional in origin, though the chief signs are in the joints. It is distinctly polyarticular, is more common in women than in men, and is a disease of young adult life. It is decidedly a disease of wear and tear, either primarily physical, or mental, or both. The fretting cares of housekeeping, the exhaustion of repeated and rapid pregnancies, and the struggle against circumstances of all sorts among the poorer classes of women seems to render them susceptible to this disease. Also a very potent influence is severe emotional strain, as grief and fright. Both of these factors appear as the causative influence.

With the exception of Bannatyne's and Schüller's work in England and Germany, which has not stood the test, there has been no evidence cited which would indicate the finding of organisms at any stage of this disease. Repeated aspiration of the affected joints has failed to produce any evidence of a bacteriological character. The confusion existing as to the clinical types of chronic joint disease has not been taken into account by those reporting bacteria in the fluid obtained from these joints. That organisms may be, and have been, obtained from cases of polyarthritis, resembling the atrophic type, is granted, and that organisms thus obtained have produced in rabbits, guinea-pigs, etc., lesions similar to those in the joints whence they were obtained is well known, but clinically as well as pathologically these cases belonged to the infectious class. From the clinical standpoint atrophic arthritis can put in a good claim to being an entity.

The onset of the disease is insidious, beginning commonly in the small joints of the fingers, sparing the terminal row in most cases, and

expending its efforts on the second and third rows of phalangeal articulations. Rarely does it attack all these joints with equal severity and at the same time. The wrists are involved early, and of the larger joints the knees, ankles, elbows, and shoulders are seized in about that order of frequency. Rarely do the hips and spine become involved, a fact which is in rather striking contrast to the infectious form of arthritis, which frequently locates in the hip or spine. At the outset of the trouble there is rarely much or severe pain. Patients complain more of stiffness and lameness, then the gradual enlargement confined to the capsule of the joint and pretty definitely outlining the boundaries of the synovial membrane. On palpation these are thick, doughy, or porky in consistency, do not show elevation of temperature, and rarely contain an excess of fluid. The apparent synovitis will usually be shown to be the result of thickening of the synovial villi. The skin is apt to become parchment-like and shiny in the more advanced cases, and disturbances in the secretion of the sweat glands are shown oftentimes by the clammy perspiration which stands out on the surface of the palms of the hands and the soles of the feet, but this is not distinctive of atrophic arthritis.

Patients with this disease, and without other cause for it, do not show any secondary anemia. A considerable number examined gave evidence, on the contrary, of having a number of red corpuscles rather higher than normal, with a normal or high percentage of hemoglobin. There is rarely any fever, and the pulse rate is normal, both of which points help to separate this group from the preceding one. Glandular enlargements and cardiac complications are no more frequent than in a similar number of patients of the same age with any chronic troubles. Erosion of cartilage comes on in these cases in a majority of instances, and is evidenced usually by a painful stage, the development of deformity, and the restriction of motion. The characteristics of the deformities, other than the spindle swellings, are the luxations and the subluxations, due to the shrinking of the cartilage. These deformities are in marked contrast to the type occurring in the other varieties of arthritis being here considered and will be referred to under the proper head.

Pathologically, material obtained at operations upon this disease during its acute stage is constant in its characteristics. The changes noted are confined to the synovial membrane, the cartilages, and the bones, with some endarteritic changes in the vessels supplying these tissues. These latter are supposed by some to be merely compensatory to the disuse, but this hardly seems reasonable, as one does not see the same thing in joints equally incapacitated from functioning by the hypertrophic process. In the synovial membrane the conspicuous feature is the villous character of the thickening. The tips

of the villi are infiltrated with round cells, and the entire membrane is soft, velvety, and very vascular and friable. There is rarely any excess of fluid or inspissated fibrin found free in the cavity. The character of the infiltration is not the same as that seen in the infectious processes, where there is a great deal of round-celled infiltration throughout all layers of the synovial membrane and also some leucocytes and many epithelioid cells, but is principally of round cells and newly formed blood vessels, the walls of the latter, which exist in great excess, being the seat of endarteritic changes as the process advances. There are frequent evidences of metaplasia in this tissue, usually a reversion to a fibro-fatty tissue, but not rarely to bone and cartilage. In the cartilage an early loss of "sheen," which is characteristic of its healthy state, a tendency to striation in a longitudinal direction, and a decided general thinning of its whole surface, with here and there complete erosions, which are not accompanied by any surrounding inflammatory reaction, indicate the most distinctive features of the pathological changes.

In the bone there is a great variation in the structure of the cortical as well as the medullary portions. The individual trabeculae are not only smaller, but are less numerous and show less branching and intercommunication.

A study of the metabolism of these cases shows that while the disease is progressing calcium is excreted in the urine in amounts greatly in excess of the normal, and inasmuch as calcium is contained chiefly in bone, and this disease is associated with an appreciable histological loss of bone substance, it would seem as though the evidence at our disposal pointed to some disturbance in the body metabolism as the cause of this disease. We have studied the metabolism in the same case when the disease was active and progressing and when it had become arrested. When it was active, the calcium was excreted in great excess; when it was arrested, the customary balance had been restored.

The X-ray is of great assistance in the recognition of this type, for it enables one to distinguish the erosions of cartilage and its general thinning, features which do not occur in the other types of arthritis.

In passing, it may be well to state that the severer forms of infectious arthritis occasionally present isolated erosions surrounded by decided inflammatory exudates, but with no general thinning of the cartilage; the hypertrophic type sometimes shows a loss of substance, due to the cartilage being worn through by the action of overlapping spurs from the other side of the joint which have worn away the protecting cartilage. Atrophic arthritis, on the other hand, may seem to show hypertrophic changes, but these must be distinguished from the repair that Nature effects in certain patients, where she not

only checks the advance of the atrophy, but actually produces an overgrowth of cartilage about an erosion. In these doubtful cases one should be sure to weigh all evidence before coming to any conclusion.

Hypertrophic Arthritis.—Here again we have a form of arthritis, the name for which has been selected with a view to finding some term descriptive of clinical as well as pathological appearances.

Hypertrophic arthritis is, in the majority of cases, a disease of adult life, and usually of the more advanced adult life, and is more prevalent among men than among women. Among men, those who are subjected to the greatest degree of occupational traumatism and exposure to cold, wet and dampness, or sudden changes from heat to cold, and from moisture to dryness, are the most likely to be affected. To a certain extent also this holds among women. The lesions in men are most likely to manifest themselves in those parts of the body which are most exposed to the particular traumatism with which they are brought in contact by their occupation. For example, laboring men, those who work with pick and shovel, are most prone to have the trouble in the spine or the hips; on the other hand, in women, whose work is lighter and principally concerned with the hands, the lesions most frequently manifest themselves in the finger joints. When it occurs in people whose occupations are not manual, it is more frequently associated with some sort of physical traumatism than with the ordinary wear and tear of life, as has been shown to be the case with the atrophic type. There are cases, however, which come under observation where there seems to be no traumatism or climatic cause for the onset of the disease. Associated with its beginnings there are oftentimes digestive disturbances characterized by flatulence, constipation, etc., which seem to have some causal relation to the disturbances in the tissues of the joints. The predominant etiological influence, however, as has been above indicated, is exposure to cold and wet and the oft-repeated but slight traumatisms of adult occupations.

The evidences of this disease manifest themselves in various parts of the body, but taking all cases into consideration the small joints show the largest number of lesions. If, however, one excludes the articulations where the manifestations of the disease cause such slight trouble that patients do not seek treatment, probably the large joints more frequently cause serious disability, as, for example, the knees, the hips and the spine. The influence of traumatism in the production of lesions, however, is equally operative in the small and large joints. As has been indicated, women have Heberden's nodes more frequently than men, and have them in the terminal phalanges, because in their work this is the situation most subject to occupational traumatism.

It has been supposed by some that the pathologic changes in the bones in this disease were of the same nature as the atheromatous changes in the arterial system, but as arteriosclerosis is not frequently associated with these manifestations, there seems to be no evidence in favor of this view. In fact, Dr. Osler is an authority for the statement that manifestations of this disease are evidences of longevity. The profession has been rather tardy in the recognition of the fact that the manifestations of this condition are multifarious. One hears *morbus coxae senilis* spoken of as a special disease, and Osler refers to Heberden's nodes as a special classification of chronic rheumatism. There is no question but that these conditions, as well as similar ones, manifested in other articulations, as the knee, elbow, etc., are representative of the same pathologic process, and the preponderance of evidence, derived both from the study of the pathologic changes in the disease and from observations which have been made upon the metabolism of the body, is indicative of its cause lying in some as yet ill-understood disturbance in the chemistry of the tissues.

The disease is insidious in its onset, usually attacking, as I have indicated in the discussion of the etiology, a few joints at a time, especially the ones which are most particularly concerned in the occupation pursued by the unfortunate subject. Sometimes there is no pain whatever associated with the manifestations of the lesions. This is particularly true in the case of the fingers, but I have seen the evidence of very marked hypertrophy of the head of the femur cause considerable limitation in the arc of motion in that joint long before the patient had his attention particularly attracted to the condition. Like some of the long standing cases of *coxa vara*, where no knowledge is possessed of the existence of the trouble until some joint strain attracts the patient's attention, so in this disease, the onset is so quiet that a very considerable degree of restriction in the possible motions of the joint may have taken place before any symptoms occur which draw the patient's attention. The symptoms which usually receive recognition on the part of a patient are pain or limitation in motion. In the fingers, a development of Heberden's nodes is oftentimes associated with only a slight pricking and painful sensation, particularly when the joints are inadvertently injured, and a stiffness on attempted motion, especially when the hands have been in a cramped position or unoccupied for long periods, as in sleep. There is no elevation of temperature and no essential change going on in the blood in this disease. There may or may not be digestive disturbances of the sort to which I have referred; but the patients very commonly will say that they have observed that constipation aggravates the discomfort in the various joints, and sometimes developments in new joints are associated with an aggravation of this condition. The urine is

apt to be scanty, of too high specific gravity, and is oftentimes carrying a greater amount of uric acid than is consistent with perfect metabolism. Further than this, I do not believe that the presence of the excess of uric acid can be regarded as having any relationship to the manifestations of this disease. It is simply another evidence of the disturbance in the body metabolism, and should be so regarded, and not as a disease in itself. Hypertrophic arthritis runs a fairly self-limited course. There seems to be, in some cases, a tendency to gradual extension of the disease from joint to joint, but such extension is usually confined to the smaller articulations. It is a matter of some interest, though of how much pathologic significance I am unable to say, that patients who manifest a considerable number of small joint involvements, as, for example, Heberden's nodes, are unlikely to have manifestations of the disease in the larger articulations. On the other hand, people with involvements of the large joints, as the hips or the knees, are unlikely to have Heberden's nodes. This, of course, is not a hard and fast rule, but as a general observation it will be found to hold true in the majority of instances. It would, therefore, look as though there were about so much of the products of disturbed metabolism produced by the average patient suffering from this disease which must be disposed of in some way, and that if local traumatism and conditions dependent upon slight injuries were directed to certain joints and not to others, the ones which were influenced by traumatism would develop signs of the disease to the extent to which it was necessary to take up the morbid elements which had been retained in the system. There is nothing, as I have already said, in this condition which tends, with anything like the certainty attending the development of atrophic arthritis, to progress to the complete crippling which one sees in that form of the disease.

In sharp distinction from the other two types of arthritis to which I have referred, this type has very few constitutional disturbances. The disease manifests itself almost wholly in the local damage which it does to the affected joints. The patients may have some indigestion and some disturbances of their functions, but are not made sick in the ordinary sense. The lesions are to a greater or less degree self-limited, and after they have become well established, give rise to no symptoms except mechanical ones. It is, therefore, a disease of much less severity than the other types to which I have referred.

From the point of view of the pathologist, the disease has not been as thoroughly studied as the other types which I have mentioned. This is because it does not as commonly require surgical interference, and thus the opportunity for pathologic investigation has been denied. Also in the case of patients who die suffering from the lesions of the disease, either they have died when the process was not acute, and thus an

opportunity for post-mortem investigation was not offered, or the arthritic manifestations were of so little interest to those who had an opportunity to study their post-mortem changes that they have neglected to do so. The material which has been available has been obtained principally from almshouses and dissecting rooms where, of course, only the end results of the disease were obtainable, and from which it was impossible to make any adequate study of the pathology of the process. The primary changes seem to be in the cartilage, and particularly in that portion of it where the bone shades into cartilage. In the cases where it has been possible to study the disease in the developmental stage, and there have been a few such, the characteristic feature has been a tremendously rapid overgrowth of cartilage, which presented no particular abnormalities except as to rapidity of growth. Eventually, this tissue becomes calcified and an ivory-like hardness ensues, which, when the change has occurred irregularly, causes limitation in the motion of the articulation affected. Sometimes this cartilaginous lip overhangs the adjoining bones to such an extent as practically to splint them. This is particularly notable in the knee- and hip-joints, and to some extent occasionally in the tarsus, and very frequently in the vertebral column. This process is commonly spoken of as "lipping." In cases where this lipping has produced relative fixation of the joint, but where a slight amount of motion is still preserved, one will oftentimes see deep grooves ground down into the cartilage beneath some of these osseous spurs. These have been regarded as erosions, and from their existence some confusion has arisen between the hypertrophic and the atrophic types of arthritis, but such confusion ought never to exist if the case is looked at as a whole.

Histologically, the bone and cartilage involved show none of the atrophy, nor do the blood vessels show entarteritic changes such as were noted in the atrophic arthritis. There are no essential differences from the histology of normal bone except for the fact that there is an excessive amount of bony tissue, which is of an ivory-like hardness. In the synovial structures there is practically never any villous change, unless occasionally a local one round some bony spur, but there is practically never any of the capsular induration which one sees in the atrophic and infectious forms of arthritis. There is rarely any synovitis occurring in the joints affected, unless spur formation has taken place to such an extent as to act as a local irritant to the synovial structures.

Treatment and Prognosis.—However interesting the studies upon the etiology and pathology of these forms of arthritis may be, unless they are productive of improvement in our treatment and enable us to foretell, with a reasonable degree of certainty, the behavior of lesions representative of these types of arthritis, our studies

avail nothing. It must be frankly admitted that up to the present time the lessons from these studies have not been rewarded with all that one could desire in these respects. On the other hand, it can be definitely stated with perfect sincerity that careful observation of patients suffering from these diseases will not only reward the practitioner with a better conception of the disease itself, thus enabling him to bring to his patients greater skill in the matter of treatment, but also will enable him to give a more satisfying prognosis as to the probable outcome.

The result of the studies thus far made have, therefore, put the medical profession in a position where greater advances will unquestionably follow. Certain conclusions can at once be drawn. For instance, granted that the differentiation into the three types which have been mentioned is justifiable on the ground of the etiology or clinical course of the disease and its pathologic changes, we can at once see how futile would be the customary treatment of these conditions by means of the salicylates without local treatment of any sort. It is true that some local treatment has been customarily given to patients suffering from these forms of arthritis, but even this has usually taken the form of the application of salicylic ointments combined with the application of heat. Where the objective signs and the course of the disease had been indicative of an infection of greater or less severity one could not reasonably expect very much in the way of the amelioration of symptoms from the application of such remedies. In the more acute stages, rest to the joint, secured by some form of fixation, together with such remedies as tend to allay the inflammation and relieve the attendant pain, are, of course, indicated. In planning and carrying out this line of treatment, however, it must be borne in mind that some of the infections have a greater tendency than others toward the production of interarticular adhesions, and, as a general principle, inasmuch as but few of these infections are suppurative, it is desirable to keep up fixative treatment for as short a time as is consistent with the relief of the more acute phases of the disease.

If one can eliminate *acute articular* rheumatism, as it is usually perfectly possible to do, from the more severe infections of a low grade type which sometimes resemble it in its clinical course, one can pretty readily satisfy himself as to when quiescent treatment should be stopped and some other form instituted. In the gonorrheal joints, for instance, which rarely suppurate, but in which the tendency is toward the production of a great deal of capsular thickening and the deposition within the joint itself of the products of inflammation, such as fibrin and serous exudate, and in which the joint capsule is being infiltrated with the products of this inflammation, and pain and local signs of infection are rapidly on the increase during the early stages of the infection, it is best to institute

radical measures, such as opening the joint through two lateral incisions and thoroughly washing it out with hot saline solution. It is then best to close it with interrupted sutures widely separated in order to permit of some leakage, but to try for a first intention, which is practically always secured. This method of treatment is to be advocated only when all the symptoms of the joint inflammation are evidently increasing steadily. If, after observation for a day or two of a freshly involved joint, it is evident that the local conditions are improving, then, of course, no surgical interference should be contemplated. If, on the other hand, the symptoms are being augmented each day, radical measures should be adopted.

Prof. Bier, of Bonn, has recently advocated the treatment of infectious conditions in joints, whether suppurative or non-suppurative, by means of passive congestion. Certainly the results which have been obtained by following out this treatment have been eminently satisfactory, particularly in the relief of the pain attendant upon these lesions. Whether the mobility of the joint is correspondingly improved is as yet a question. Of one thing, however, I am certain, and that is that the persistence of pain very materially interferes in the securing of motion, for as long as the joint is very sensitive, no patient will permit it to be manipulated, and the daily or almost daily administration of an anesthetic for the length of time that is necessary in these cases to secure motion is, of course, contra-indicated. It would seem, then, on theoretical grounds, that anything which speedily relieved pain would correspondingly freely secure motion.

If the cases of this sort are operative, early institution of manipulation should be adopted in order to secure the motion in the joints. It is rare for erosions to occur in the cartilage of sufficient extent to interfere with motion, and limitation of motion is commonly caused in these cases by the thickening which takes place in the capsule. In the average case which is severe enough to come to the open method, pretty complete restitution of motion can be expected if treatment is followed out consistently by the patient. This is, of course, very often hard to do because it is a painful procedure, and unless the individual is pretty "sandy," he is apt to lose his courage. Massage, passive congestion, local douching with hot and cold water—these are the methods which best favor the resorption of the infiltration. It is well to protect these joints by a removable splint, preferably of plaster of Paris, so arranged as to be easily removable during the more acute stages of the trouble.

Mechanical massage and manipulation, as accomplished by the Zander apparatus, is of much benefit in the after-treatment of the infectious cases, particularly when the joint sensitiveness has gone down enough to permit of motion. It

has the advantage of being so amenable to regulation that it does not irritate the joint nor produce an excessive amount of capsular infiltration. The apparatus is also of advantage in the atrophic type of arthritis, where there are no erosions in the cartilage. In the hypertrophic form it is of no benefit, and, in fact, might cause an aggravation of the symptoms.

I have selected the gonorrheal type of infection for the discussion here because of its frequency and because in cases of this severity it represents the procedure which will give the best results, whatever the type of infection. There are, of course, milder grades of infection than the gonorrheal, some of which are caused by such attenuated organisms that scarcely any trouble is to be noticed from them other than slight capsular thickening or a moderate degree of synovitis.

Investigations which have been carried on during the past year at the Carney Hospital Clinic, by Dr. Rhodes Fayerweather, have demonstrated that in these mild articular affections there are frequently organisms present situated in the subserous layers of the synovial membrane, and in small numbers in the fluid of the joint, which are capable of producing changes in the synovial membranes of the joints of animals when the organism is inoculated into them. It was repeatedly possible to obtain the original organism from rabbits successively inoculated, and to reproduce the lesions of the original human joint in other rabbits inoculated from them. It was not only possible to demonstrate the organisms in the fluid aspirated from these inoculated joints, but it was also possible, as it was in the original human subject, to demonstrate the organism in the synovial membrane of the patient and of the experimented animal itself. These seemed to belong to various groups of the family of bacteria, so that it is probable that various infective organisms, when they become sufficiently attenuated, are capable of producing very low grade lesions in one or two large joints, as is not infrequently observed. The effect of the presence of these organisms is usually to cause a villous arthritis, and the presence of this thickening of the joint capsule is sufficient to cause considerable disturbance within the articulation. The old-fashioned way used to be to inject these joints with carbolic acid or some other fluid which would produce an eschar and in this way destroy the bacteria *in situ*. It would seem, however, from the situation of the organisms, as demonstrated in the tissues by Fayerweather's work, that it would be impossible to reach them by a superficial joint inflammation, and, more than that, it seems likely that a good many of the symptoms which were produced by the presence of these organisms were produced in virtue of the villous thickening to which they gave rise within the articulation. Dissecting out these villi thoroughly and washing out the joint with saline

or antiseptic solutions in a manner similar to that which was described above, seems to be a very rational procedure, and it is certainly accompanied in most cases by very satisfactory immediate results.

The general polyarthritic affections belong, as far as treatment and prognosis are concerned, to a very different class from the cases which we have been just now considering. In this class of cases, general as well as local treatment is indicated, and if we would obtain the most desirable results some way must be established of destroying the organisms *in situ*. Recent investigations and clinical experience in the human being indicate that in certain sera we have at our disposal a method which is likely to be of value in the treatment of these polyarthritic conditions. Obviously, the greatest difficulty which lies in our path is that there are so many types of infection that it will be difficult to keep pace with them in the production of suitable sera. At present, Aronson's serum, which is a combination of the active principles as well as the organisms themselves, and has some thirteen strains of streptococci, has given the most satisfactory results. Inoculation should be started with about 100 units of Aronson's serum, increasing to the maximum dose, and should be made in the deep tissues, where it is less painful than directly underneath the skin. A sharp reaction, accompanied by malaise, fever and general aggravation of all joint symptoms, is to be expected, and this lasts for twenty-four to thirty-six or forty hours. A second injection should be given about two days later, and this should be followed up at about forty-eight to seventy-two-hour intervals for eight or ten days. Amelioration of the pain and lessening of the swelling are oftentimes noticed after the second or third inoculation. How permanent this is going to be it is impossible to say, but, theoretically, it seems the rational treatment, especially in view of the fact that it has been possible to demonstrate organisms in the synovial structures of joints affected with polyarticular inflammation.

Tonic treatment, however, must be maintained in all these cases. The general nutrition has always suffered, the composition of the blood has been rendered poor, and tonics and iron are always of benefit. It is noticeable, as has been pointed out, that patients are liable to show an elevation of pulse and a slight rise in temperature at evening, and so long as this condition persists not much can be done in the way of stirring up the joints with manipulation or massage, but after this stage has passed local stimulating treatment is indicated. Although as yet we are not in a position to promise much to sufferers from polyarticular infections, and it is wise to be guarded as to the prognosis, nevertheless the indications are that in a comparatively short time serum therapy will accomplish much for their relief.

The treatment of the atrophic forms of arthritis can be best divided into constitutional, mechanical, and operative. The constitutional treatment is to be directed principally toward the improvement of the patient's general nutrition. Because of the misapprehension which has existed with reference to diet in this form of disease, many physicians, believing in a restricted meat diet and an abstinence from carbohydrates, have cut out these elements of food, and, in consequence, their patients have suffered decidedly. This procedure has been entirely the result of misapprehension. In the light of the very imperfect knowledge which we now possess regarding the chemical processes which are concerned in the development of the atrophic and hypertrophic forms of arthritis, we are in no position to be dogmatic as to dietetics. The one thing that is obvious, however, is that if we can eliminate from the etiology of such conditions any infective organisms as an etiological factor there is no necessity for confining these patients to a diet which would be of benefit to a patient suffering from an infection, and there is no manner of doubt that many patients have been seriously damaged, or at least very materially retarded in their improvement, by the very zealous pursuit of a so-called "anti-rheumatic diet." In the infectious form, on the other hand, when it is in its most acute stage, there may be reason for restricting the patient's diet, but even here it should not be carried out so long as to impair the general nutrition, thus adding to the damage which has been done by the disease itself an element of malnutrition which is a serious handicap to the patient. A wholesome diet, implying the frequent administration of small amounts of nutritious food, will most speedily bring up the weight of the patient, and co-incidentally with this, he will be in better condition. It also enables the patient, I am very sure, to repair some of the damage which the atrophic changes have produced within his more severely affected articulations.

There are no specific drugs which are of avail in this disease. Although the salicylates and the iodides are notoriously ineffective, they have, nevertheless, been given in profusion, with the result that digestion has been impaired and patients have been put in a position where it was more difficult for them to contend with the disease than it otherwise would have been. Where digestive disturbances exist in the atrophic and hypertrophic forms of arthritis they most certainly have some significance as to the cause of the arthritis. They occur with sufficient frequency to indicate very strongly a causal relation, and it has been the experience of those who have studied these disturbances most carefully that the patients who suffer from them have had their joint conditions materially benefited by attention to the constitutional disturbance. The relationship, however, of these digestive disturbances to the disturbances in

metabolism which are fundamental to the arthritis has yet to be worked out.

If mechanical treatment is indicated, it usually concerns the deformities which have followed contracture of the large joints, principally the knees and sometimes the feet. Such deformities in the knees are usually flexions and sometimes subluxations of the tibia upon the femur. At times these are of such a degree as to demand correction for the sake of enabling the patient to walk. Sometimes, when the degree of deformity is less, walking is possible, but with difficulty. The importance of the correction of deformities is twofold. In the first place it enables the patients, by securing capacity for locomotion, to avail themselves of conditions of outdoor life, exercise, and so on, which are of importance in combating the disease, and in the second place, the long continued malposition of a joint renders it less likely ever to be restored to proper function, so that if the disease is spontaneously arrested, the joints are left in a position sadly to their disadvantage. It is worth while to plan mechanical treatment for the joints of the locomotive apparatus more particularly than for the other articulations. The "caliper splint," so-called, a splint designed to prevent or correct, as the case may be, any flexion at the knee-joint, is an easily adjusted apparatus and one which is very simple to make. Where this is not possible, manual correction can be carried out under an anesthetic, if necessary, and a fixed plaster of Paris or removable leather splint adjusted, which will enable the patient to get about with less joint strain. Massage and gentle passive manipulations are of advantage in any stage, as the conditions of local nutrition are favorably influenced by attempts at normal function, whether these attempts be active on the part of the patient, or passive on the part of the attendant. Local stimulating hydrotherapy is of value to the joints themselves, and is also of benefit to the individual.

Operative interference, other than for the correction of the deformities above mentioned, is rarely indicated. Excision of the large joints in the more advanced cases does not give very satisfactory results. Union, where it is desirable, is difficult to obtain, and where undesirable, seems to be obtained with great ease. Occasionally the villous thickening which takes place in the capsule is so great as to cause pain in virtue of its presence as well as a considerable limitation in motion due to mechanical interference. Under such conditions, an arthrotomy with a view to removal of the villous fringes is permissible, and indeed is to be advocated. Manipulative measures to secure motion where there is no other reason indicated than the establishment of a better position are undesirable, as these joints with erosions within them are very unlikely to yield very satisfactory results to manipulation. If a reasonably satisfactory position exists in any joint affected by this form of

arthritis, even if the joint is partially or wholly ankylosed, it is much better to leave it alone than to attempt to secure motion in it. When the process has all quieted down and there is evidence of repair in the eroded areas within the articulation, then it would be permissible gently to manipulate, because it is likely that the prolonged fixation has stiffened up the capsule and possibly the limitation in motion may be partially due to restriction in the elasticity of the joint membranes.

The prognosis in the early cases of atrophic arthritis, where the patients can give up the time to absolute rest, to change of scene, where they can secure an abundance of wholesome, nutritious food, and can live outdoors is good. If they can treat themselves as though they were consumptives and protect the affected joints so that deformities will not develop, and can cause congestion and thickening of the synovial capsules to disappear, and prevent erosions in the cartilage from occurring, the disease can be arrested. If this stage is past and the patients have acquired marked deformities, there is not much that can be done and nothing should be promised. Prognosis should, therefore, be guarded in the cases where well established lesions with cartilaginous erosions exist. Where only the villous changes in the joints have taken place and the case is in its early stage much can be done, and it is the saving of these cases and the prevention of some of the crippling deformities which would otherwise result that makes it worth while to pursue the study of atrophic arthritis.

In a similar manner to that in which we have considered the treatment of atrophic arthritis, we should consider the treatment of hypertrophic arthritis. The constitutional treatment can very largely be put aside as unnecessary. The striking feature which stands out most conspicuously of all is the fact that the disease is one of imperfect elimination. Any tendency, therefore, to constipation should be combated by appropriate remedies, and of these, the continual, or at least long continued, use of the phosphate of soda in ten or fifteen grain doses in hot water before meals is perhaps the most efficacious which we have for the purpose. At any rate, this tendency should be combated preferably by saline drugs and the administration of large quantities of water. Recently a combination of the phosphate and benzoate of soda, combining the cathartic and diuretic effects which are extremely desirable in these diseases, has been put on the market, and it is rather more efficacious, I think, than the phosphate of soda alone.

Inasmuch as the skin is a medium for getting rid of the waste of the body to a very large extent, attention should be directed to this, and salt rubs, produced by dissolving a considerable bulk of salt in a small quantity of water and saturating a coarse towel with this at night,

wringing it out, and completing the drying by evaporation over night, will be found to have a beneficial effect and to render the emunctory function of the skin more satisfactory.

So far as the mechanical treatment is concerned, a diametrically opposite course should be pursued from that which was indicated in the atrophic form. In the acute stages these joints should not be stirred up, and in order to prevent the development of spurs and nodes about the joints in such situations as interfere with motion, the use of the joint affected should be restricted. A good rule to follow is to permit whatever motion is unaccompanied by pain, and by bandaging or splinting to prevent such motions in the affected joints as cause discomfort. Manipulations are contraindicated in practically all stages of this form of arthritis. It is much better to allow a considerable degree of deformity to exist until the disease has quieted down, and then, if necessary, to correct it by means of an osteotomy. This procedure is particularly applicable to the hip-joint. The extent of the lesions in the fingers can be materially affected by finger splints worn during the stage of development of the disease. Most patients, however, prefer to have a certain amount of deformity in the fingers, even though it is slightly greater than is necessary, rather than give up the function of the hands during treatment. In the elbow it is sometimes possible, by removing spurs, to improve the amount of motion in the joints. In the knees practically no benefit is to be obtained from attempts at removal of Heberden's nodes. Excision of the hip for the purpose of curing morbus coxae senilis is a procedure which, though it has been done a number of times, and occasionally with success, is hardly to be advocated. It is much better to protect, with a spica, for an indefinite time, hip-joints affected in this way than to attempt by surgery to relieve the condition.

The prognosis in hypertrophic arthritis is essentially better than it is in atrophic arthritis. Some of the double hip cases which have been allowed to go on unprotected get so deformed and so firmly ankylosed in a deformed position and are usually so stout that it is practically impossible to handle them in any way. Crutches, combined with some fairly pliable removable fixative apparatus for the lower back and the thighs gives perhaps the most satisfactory support.

These patients are apt to have a very troublesome time at night on account of getting into such constrained positions and not being able to move out of them. It is to this feature that most attention, oftentimes, has to be paid, and it is an extremely difficult one to handle as one is loath to give morphine in such cases, and no less of a drug is capable of producing any effect. Probably the most satisfactory method of managing this phase of the disease is by as complete a fixative bed of plaster or leather as is possible to arrange.

I hope that this discussion of these three types of arthritis will have brought to your attention some of the phases of the work which demand for their solution the concerted action of the profession. If such a purpose has been accomplished, I am sure that great satisfaction will come to all of us and much benefit will accrue to a class of sufferers whose ills have been too long neglected.

TREATMENT OF LOBAR PNEUMONIA.¹

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AFTER years of experiment, the search for a specific in lobar pneumonia has resulted in a vast number of forms of treatment, as varied as they have been disappointing. As each new therapeutic measure was advanced, with its array of statistics, distorted and molded so as to decrease the mortality to an occasional death, it was grasped at, used indiscriminately as the accepted method and then slowly died the death of its predecessors, only to be succeeded by a still greater disappointment. So from Hippocrates down we pass through the reigns of venesection, tartar emetic, veratrine, pilocarpine, digitalis, cold baths, quinine and creosote, each one for a time having sway, each one meeting with strong opposition, and each in turn abandoned, proven either useless or decidedly harmful.

All this work has, however, not been wasted; for, in a negative way it has exposed many pitfalls that are to be avoided. Again, in spite of all that might be brought against these special forms of treatment, it is interesting to note how even to-day their shadows still haunt the profession, and how each and every one of them is tried here and there in the vain hope of changing all that has gone before. Perhaps the most remarkable is venesection. Diétl dealt this form of treatment a severe blow and from him dates its abandonment; and yet, at this very moment it is being used, fortunately not often, at all stages of the disease, without discrimination, without regard to heart or arteries—the only thought being venesection.

Finally, with the theories of immunity, the work on toxins and antitoxins, our hopes were again raised, and after the miraculous work in diphtheria it seemed as though at last we were about to have a specific; but here again, all has been failure, though nearer now than ever before to the scientific principles which may some day give us the true remedy.

Symptomatic treatment is all that is now left us, its method being that it has no method, and makes the judgment of the physician the test of success or failure. He must discriminate between cases; must recognize a case that runs a mild, self-limited course from one in which he

¹ Read as part of a symposium on Lobar Pneumonia, at Eastern Medical Society, January 13, 1905.

must strain every nerve; must distinguish between a severe sepsis and a slight poisoning; a good heart and a poor heart; a sthenic and an asthenic form. The physician must use his judgment when not to interfere, where his case goes to a good end without a grain of any drug. He must be fearless where his case demands; and by this I mean that numbers in text-books are no guide to dosage, but that in this disease above all others the physiological effect makes the dose, whether this be small or large.

Let us start with the hygiene of the patient. The room of a patient suffering from pneumonia must be one that can be well aired and in which the sunlight is plentiful. The heating should not be by methods which in themselves use up the oxygen.

The bed is of paramount importance. A soft, old-fashioned, wide bed will in a very few hours find the patient sagged in a cavity, uncomfortable and unmanageable, without giving the least freedom of movement to the chest. The bed should be hard and narrow, so that the nurse may work from either side and have the patient under full control. If possible, a second bed like the first should be near, so that the patient may be slid over during the renovation of the first.

The nurse must be trained, and relieved at least every twelve hours. The necessity for constant watching of temperature, pulse and sudden changes in the patient, with the possible call for emergency work, makes the case absolutely a hospital case, if such nursing cannot be obtained, and we wish to exercise ordinary care in the management.

Whenever possible the administration of drugs should be by the hypodermic method. In this way we use exact dosage and know that the drugs are absorbed. Stomach medication in a patient with high temperature, septic, and with distention of the gastro-intestinal tract, affords but a poor and unreliable way of entering drugs and should never be used where indications are urgent, and only when the nature and quantities of the drug make hypodermic administration impossible.

During the course of the disease and when awake, the patient should have his position very carefully changed at frequent intervals in order to equalize circulation in the lungs. Especially is this of importance in the aged.

External applications, such as flaxseed poultices, mustard plasters and the like, have justly fallen into disuse. They accomplish no purpose except that of impeding the free play of the chest and causing discomfort to the patient. A cold compress about the chest may be used for antipyretic purposes, but its too frequent changing is not advisable.

Oxygen is at the present time in pretty general use. Its efficacy is a mooted question; but in sudden collapse, dyspnea and cyanotic states its administration is of the greatest importance. The ordinary tip can be replaced to great ad-

vantage by a glass funnel which allows a free flow to both nose and mouth, and may be pinned to the bedding by means of a safety pin.

Bowels.—At the onset of the disease, calomel in divided small doses, followed by a saline, is of undoubted value; after this, enemata should be relied upon entirely. The enema should contain peppermint water, or, if the kidneys are sound, occasionally oil of turpentine. This will prevent undue distention, which may, however, demand a second enema during the twenty-four hours with the application of hot turpentine stupes to the abdomen. The high enema with the rectal tube is preferable, provided the patient be not one of that class hypersensitive to such procedures.

Temperature.—The temperature is to be reduced where not well borne. The modern opinion is that temperature favors the production of antibodies, and as such may be considered a normal phenomenon. High temperature, however, is badly borne by many patients, and the question of an antipyretic arises. Large doses of the coal-tar products are unquestionably bad; but the pendulum has swung too far in this regard, and when cold spongings are not practical or not efficient, small doses of the coal-tar antipyretics may be used with perfect safety, preferably combined with a small amount of caffeine. Hydrotherapy which mauls and pulls the patient about is harmful. Van Jürgenson in using cold baths has no fear for the heart. He explains the action upon the principle of peripheral contraction, the pouring of blood toward the center, and, through the agency of the coronaries, increased muscle activity. This argument leaves entirely out of consideration the fact that the heart is not so much influenced by the temperature as by the intoxication. The condition is in no sense parallel to typhoid, where the nervous system is so well influenced by the Brand treatment, but in which the heart is not embarrassed on the one hand by toxemia and on the other by a mechanical obstruction.

Delirium.—The delirium in this disease, occurring both at the commencement and at the end, is of the active type in most cases and necessitates the greatest watchfulness, as these patients may leave the bed and try to get out of windows. This delirium may cause loss of sleep to such an extent that a harmful condition may result. Morphine in small doses is recognized as the best method of controlling it and procuring sleep. The chief danger of morphine lies in its use in large doses and in edematous conditions of the lungs. Hypnotics are followed too often by undesirable effects, especially headaches. If any choice is to be had, however, perhaps chloral serves the best purpose. Bromides have been extensively used and are recognized as perfectly safe, but prompt and active medication is so often indicated that some more rapid method is necessary. Morphine guardedly used serves every purpose.

Diet.—The diet of the patient must be carefully managed. The state of the abdomen is, to my mind, second in importance only to the state of the heart. The distended abdomen is invariably a source of danger and shows at once a vasomotor paralysis of the intestines, with or without the gaseous product of decomposition. It means not only poor intestinal absorption, but mechanically makes upward pressure on the intrathoracic organs. Feeding must be so managed as to avoid such distention as far as possible. Pneumonia has generally been looked upon as a disease that must be fed up at all hazards, and this is often done to the detriment of the patient. The disease is one which lasts a comparatively short time and overfeeding serves no purpose. Milk is the agent mostly relied upon. When we consider the large percentage of healthy individuals who never take milk in its pure state and the great number with whom milk positively disagrees, we must hesitate before ordering this form of feeding in pneumonia or any other acute febrile condition in which surely the milk cannot be as well tolerated as in the normal state. We have no desire to condemn this food to complete exclusion, but its use must be judiciously managed by giving in small quantities diluted with cereal waters such as barley water, and, by attention to the stools, follow its digestion; if invariably followed by flatulence and belching, it should be dispensed with entirely. The customary dilution with a carbonated water is not to be advised. Where pure milk can be readily digested, the addition of small amounts of coffee or cocoa will frequently keep the patient from rebelling against the monotony of the milk diet. Beef tea is readily taken by most patients. The addition of eggs will make up for the criticism that it is a stimulant and not a food. The various broths, mutton, chicken, etc.; the jellies, corn starch, porridges, custards, juices of fruits, stewed fruits in very small quantities may be so administered as to carry the patient easily over the crisis when the more solid food will be indicated.

Water.—A happy mean must be maintained. Its administration should be ordered by the physician, both as to time and quantity, and not omitted from the nurse's orders. Its administration may be abused, as large quantities at a time may paralyze absorption so that it will really act as an irritant. It should be given in relatively small quantities but frequently, so as to produce a continuous flushing of the system of its poisons, both by kidney and skin elimination. Any water containing carbonic acid is to be avoided. Hypodermoclysis or the use of hot saline solution subcutaneously, a pint two or three times a day, has been strongly recommended by many, including Osler. Such water may be also given per rectum.

Heart.—In the care of the heart we must consider old heart lesions, acute infectious degeneration, and finally, mechanical dilatation of the

right ventricle. In the first, old heart lesions, the use of digitalis at the onset is strongly recommended by Aufrecht, not, however, in the large doses that have been the subject of so much discussion by Petresco, Barth, Fickl and others, on the one hand, and Gerhardt, Van Jürgenson, and others, on the other. A. Fraenkel, while using the large doses where he saw the patient within the first three days of the illness, makes such limitations as organic heart disease, disease of blood vessels, arteriosclerosis, kidney disease, fifty years of age or over, and the alcoholic habit, and also keeps track of blood pressure with Gärtner's tonometer. Traube also makes note of the different effects when used at the beginning and end of the disease, and says that one gram at the end may cause positive slowing and irregularity of the pulse. Leyden, in perhaps the latest work on the subject, refuses to recognize the large doses and claims the indication for small doses to be a weak pulse either before or after the crisis. Surely, on theoretical grounds we can hardly understand why this method of large doses of digitalis should have been hailed as a specific. The fact that the low tension seen in asthenic pneumonia may be counteracted is no proof that the disease can in this way be controlled for the good of the patient, and when the dangers of a fatal collapse, as described by Aufrecht, stare us in the face, our small and less heroic dosing, when indicated, offers as much as we can expect from digitalis.

Alcohol is a drug we must place great reliance on, acting as a valuable heart tonic, as a food, and saving tissue oxidation. The best proof of its efficiency is the easy manner in which it is borne by pneumonia patients. Champagne is, in my opinion, positively contraindicated; the distention caused by it would at once negative any good qualities. Whisky alternated with sherry furnishes the most easily tolerated as well as the most pleasant method of using alcohol. The pride with which many boast of the number of bottles of champagne or whisky consumed in the cure of their pneumonia is but another proof of a therapy blindly groping in the dark regions of specific without regard to the ultimate depression that may be caused by overdosing with alcohol.

The next routine drug is strychnine. Whatever may be said theoretically, no one with enough experience can doubt its efficacy in a weak and flagging heart. Its use must be hypodermic, and when the heart is wearing itself out, must be pushed to the physiological limit. When further medication is needed camphor and oil furnishes a splendid diffusible stimulant. Sodium benzoate of caffeine is excellent, but must be guardedly given where there is delirium or restlessness. By stomach we may give ether and ammonia combinations as diffusible, rapidly acting stimulants.

Our right heart must now be constantly under observation. A weakened second pulmonary

sound together with a distention of the right ventricle, accompanied by cyanosis or beginning edema are just and legitimate indications for opening a vein and the removal from the engorged right side of eight or ten ounces of blood, provided the heart be not in too weak a condition.

In pulmonary edema wet cups are strongly indicated; such may be easily applied by means of glasses over scarifications made with a sharp scalpel. At this point the free use of oxygen is of the greatest value.

The combination of atropine and strychnine, with the addition of a small dose of nitroglycerin, all in one hypodermic, is an effective remedy; to this may be added the fluid extract of digitalis, if this drug has been reserved, given hypodermically. In spite of physiological effects from all these drugs, necessitating their use in a restricted manner, we may desire still another stimulant for a very poorly acting heart. I cannot too highly recommend the tincture of musk, a drug which has fallen into disuse from its expense, but to which I lay the turn of the tide in many a severe case. Expectorants should be chosen with due regard for those likely to depress; among the most useful will be found the German liquor ammonia anisata.

Of the drugs used for the disease in general perhaps the best class is that consisting of the salicylates and aspirin. The ergot treatment is too new to say very much about.

The above condensed sketch does not in any way pretend to cover all the points that may arise in the care of pneumonia. In conclusion, however, I would say that while many cases go to a cure without medication, there exists no condition which in its results is more grateful to judicious management. Overwhelming toxemia may make all efforts useless and carry away our patient in spite of any treatment; but constant vigil and bedside watching, the use of the proper drug at the proper time, will tide over many a patient who would otherwise be doomed.

122 East Fifty-eighth Street.

Report on a Series of Experiments to Determine the Antitoxic Depreciation of Antidiphtheric Serum.

—L. C. LAYSON (*Am. Med.*, Oct. 28, 1905) bases his article on a laboratory study of antidiphtheric serum representing the stock from which the market had been supplied, together with samples returned from the market, all kept under the varying conditions encountered by field antitoxin. He concludes that the antitoxic value of antidiphtheric serum is retained much longer than has hitherto been believed. The majority of diphtheric serums retain their antitoxic potency unimpaired or but slightly diminished for two, three, four or even five years, and that the maximum depreciation of the occasional serum does not exceed 33⅓ per cent., which contingency is guarded against in the practice prevalent with American mercantile antitoxin establishments of adding an excess of serum sufficient to cover the loss sustained by the occasional sample.

A CLINICAL AND BACTERIOLOGICAL STUDY OF THE COMMUNICABILITY OF CEREBROSPINAL MENINGITIS AND THE PROBABLE SOURCE OF CONTAGION.

Part I of an Investigation of Cerebrospinal Meningitis Carried Out Under the Auspices of the Special Commission¹ of the Department of Health of New York City.

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EPIDEMIC cerebrospinal meningitis, so far as history is concerned, seems not to have been clearly observed prior to 1800. In the histories of the great epidemics of Europe, from the thirteenth century on, symptoms are described which almost certainly point to this disease. An interesting account of these early epidemics is given by Webber.¹ Since 1800 the disease has appeared in four large epidemic periods. Hirsch² divides these periods as follows: the first, from 1805 to 1830, shows the disease more general in the United States, though there are also isolated epidemics in various places in Europe. In the second period, from 1837 to 1850, meningitis became prevalent in widespread epidemics in France, Italy, Algeria, the United States and Denmark. During the third period, from 1854 to 1875, the malady reached its widest diffusion throughout most of Europe, the adjoining countries of nearer Asia, the United States and some parts of Africa and South America. The fourth period, from 1876 to the present time, is a return to merely casual epidemic outbreaks or to more or less considerable groups of cases here and there within its former limits. It is to be noted, however, that during this period there is not a year wholly free from epidemics in some part of the world.

These four periods have been critically examined by Jaeger,³ who calls attention to the fact that the interval between the periods is growing shorter thus—seven, four and one year respectively—and that as our knowledge of the disease is becoming more definite and the cases are more carefully reported, one finds that epidemics of this disease have never entirely died out. Since the spontaneous origin of living disease germs is out of the question, Jaeger believes that such long intervals as that of seven years between the first and second period can only be explained "either by assuming that the virus has extraordinary powers of life outside the body, or that the virus is kept alive by being transmitted from one individual

¹ Commission for the Investigation of Cerebrospinal Meningitis: William M. Polk, M.D.; Walter B. James, M.D.; Simon Flexner, M.D.; Edward K. Dunham, M.D.; William P. Northrup, M.D.; William K. Draper, M.D.; Joshua Van Cott, M.D.; W. J. Elser, M.D., in conjunction with Thomas Darlington, M.D., President, and Hermann M. Biggs, M.D., General Medical Officer.

to another *without giving rise to epidemics.*" The former possibility may be dismissed, for practically all authorities agree that the organism certainly does not possess very great powers of resistance. In fact, most authorities have found it to possess but little vitality. We must, therefore, look upon the sporadic cases as some of the connecting links between the epidemics and must also seek for the organism in individuals who are not infected.

Geographical and Seasonal Distribution.—A careful study of the geographical distribution shows that the disease occurs mostly in the north temperate zone, although it has been observed as high north as Iceland and as far south as Java. Of 182 European epidemics, 24 were in October and November, 46 in May, 24 in June and July, 10 in August and September. In Sweden, of 417 local outbreaks, 311 were in winter and 106 in summer.⁴ Of 85 epidemics in the United States, 37 occurred in winter, 18 in winter and spring, and 23 in spring.² The disease has occurred in perfectly mild winters, such as those at Metz in 1839-40, in Italy in 1839-40 and 1840-41 in Indiana in 1862-63 and in Kentucky in 1866. Some epidemics in fact have not shown themselves until summer, as at Bordeaux in 1839, Toulouse in 1842, Dublin in 1850 and Cracow in 1874. When meningitis was epidemic in Asia Minor in 1868-70 it came to an end in Magnesia just when severe cold set in; but it showed itself at Smyrna in the spring under very high temperature.

Etiology.—It is now generally conceded that the etiological factor in most of the cases of epidemic cerebrospinal meningitis is the diplococcus described by Weichselbaum⁵ in 1887, and now commonly called the meningococcus Marchal⁶ analyzed 513 cases of cerebrospinal meningitis. He divides the cases into primary sporadic and epidemic cases. In the former there were 95 cases, of which 48 showed the meningococcus, 40 the pneumococcus, and 7 various other organisms. Among the second class of cases, 418 in number, 307 (73 per cent.) were associated with the meningococcus, 67 (16 per cent.) with the pneumococcus, and 44 (10 per cent.) with various other bacteria. Schottmüller⁷ examined 49 cases, finding the meningococcus of Weichselbaum 43 times. In three of the cases there was mixed infection, once with tubercle bacillus, once with pneumococcus and once with *Streptococcus mucosus*.

In the literature of meningitis, especially shortly after the discovery of the organism and before bacteriological diagnosis had been very much developed, a number of instances are recorded in which epidemics of cerebrospinal meningitis were observed in which the infecting micro-organism was other than the meningococcus. Some of these appear to have been epidemics of pneumococcus meningitis (Panienski⁸, Quadu,⁹ Weichselbaum, cited in Schottmüller⁷). In others the statements of the authors are so

conflicting that one hesitates to accept them (Bonome¹⁰). It must always be remembered that cases of pneumococcus and of streptococcus meningitis are fairly common, and that they will, naturally, occur also during an epidemic of meningococcus meningitis.

As said above, however, there is no doubt that the large majority of cases of epidemic cerebrospinal meningitis are associated with the meningococcus.

In an excellent study of 119 cases of cerebrospinal meningitis which occurred in Boston Councilman¹¹ says that "in a question of the probability of transmission of an infectious disease we should consider the location of the disease and the ways in which the organism causing it can pass from the lesions of the disease to the outside; further, the viability of the organisms and the possibility of their leading a saprophytic existence."

Occurrence of the Meningococcus.—It is unnecessary here to go into the occurrence of the meningococcus in the meningeal exudate and in the fluid obtained by lumbar puncture. So far as the epidemiology of the disease is concerned, this localization of the organism in the interior of the skull and spinal canal is without special interest.

Councilman found Gram-negative diplococci in the nasal secretion of a number of patients suffering from meningitis. These organisms were not, however, isolated in pure culture and further identified. The same author isolated one culture from the tonsils of a patient with cerebrospinal meningitis, and this proved to be a true meningococcus. Schiff¹² examined the nasal secretion of 27 healthy persons, finding an intracellular diplococcus in 7. Of these 7, 3 were identified as meningococci by Weichselbaum. Kiefer,¹³ while working with a culture of meningococcus, was seized with a coryza. He thereupon succeeded in isolating a meningococcus from his nasal secretion. Lord¹⁴ also demonstrated the organism in the nasal secretion of a patient which he examined. Albrecht and Ghon¹⁵ isolated the meningococcus from the nasal secretion of a patient with cerebrospinal meningitis and from that of a person in contact with such a patient. Weichselbaum and Ghon¹⁶ isolated the organism from the nasal secretion of one patient with cerebrospinal meningitis and from that of three persons in contact with cerebrospinal meningitis. Griffon and Gandy¹⁷ succeeded in isolating the meningococcus twice from one patient with cerebrospinal meningitis, an interval of five days elapsing between the two times. Our own results along these lines will be found at the end of this paper.

A number of observers have succeeded in isolating the meningococcus from the blood by means of cultures (Solomon,¹⁸ Moller,¹⁹ Bettencourt and Franc,²⁰ Elser²¹). The last-named author examined 41 cases and succeeded in isolating the meningococcus from blood cultures

in 10. He found that the occurrence of the organism in the blood was extremely irregular; sometimes the organism was present at the beginning of the illness; sometimes at the end. He found no relation between the presence of the organism in the blood and the severity of the disease.

Weichselbaum has recently published a case in which the meningococcus was found in the lesions of an ulcerative endocarditis. Drigalski,³¹ in one case, found it in the herpetic vesicles.

The above are practically all the observations on the occurrence of the meningococcus elsewhere than in the meninges of the brain and cord. An observation on the occurrence of the meningococcus in the dust of infected barracks can be dismissed as absolutely unreliable.

Viability of the Meningococcus.—There are but few statements as to the viability of the meningococcus. Jaeger²² states that he observed that some meningococci which had been dried in pus were still visible after 127 days. On the other hand, Councilman says that so far as he was able to tell from its behavior in culture media and in the tissues, "the meningococcus has a feeble vitality and would not be capable of leading a saprophytic existence. It must of course be remembered that in experiments to determine this viability, we cannot reproduce artificially all the conditions which the organisms find in nature." Bettencourt and Franca²⁰ made a number of experiments with cultures of meningococci. It was found that cultures dried on glass at various temperatures, 37°, 24°, 19° C., had lost their vitality at the end of twenty-four hours. In many cases they were already dead at the end of three hours. Cultures exposed to direct sunlight where the thermometer registered 35° to 37° C. were dead at the end of two hours. Weichselbaum²³ also regards the meningococcus as having but feeble powers of resistance, and this opinion is shared by almost all the best workers.

TRANSMISSION OF THE DISEASE. Influence of Close Contact.—That infection goes hand-in-hand with close contact between persons is shown, for example, by the following references: Frothingham²⁴ describes a small epidemic which broke out in one regiment of the Army of the Potomac. The soil was clay, weather mild and damp. The soldiers were crowded together, five to six men in a small tent. Conditions were such that remittent, intermittent and typhoid fever abounded. Nevertheless the cases of meningitis observed occurred only in one regiment, and this had by no means the worst quarters. Gifford²⁵ reports five cases of meningitis occurring in one family, one after another, within a week. He was unable to trace the cause of the outbreak. Hammer²⁶ in a discussion, remarked that in 1843 he had seen an epidemic in Mannheim, Germany. The garrison there consisted of 800 men, and the city contained 30,000 people. Yet no one was affected

excepting the military. In two months about 50 cases had occurred, of which 11 were fatal. A few years previously a similar epidemic occurred in Strasbourg, also confined to the barracks. Corbin²⁷ describes an epidemic among the soldiers at Orleans in 1847-48. The townspeople were not affected. Jourdes²⁸ says the disease raged among the troops in Strasbourg for four months before it broke out among the townspeople. Here it occurred in 52 streets, but raged particularly in narrow, crooked streets where many people were crowded together. Mayne²⁹ observed epidemics which occurred in various workhouses and hospitals. Gahlberg³⁰ remarks that certain streets are markedly affected. In one street there were 9 cases, in another four and in a third 6 cases. Those in the last-mentioned street were practically in neighboring houses. Most of his patients were robust. The cases extended from February to May. Ziemssen³¹ believes that conditions of soil are without any influence on the spread of the disease, and that the weather is also no factor. In general his cases belonged to those living in unhygienic surroundings. Only 5 (out of 42) belonged to the upper class. Most of the rest lived in poorly ventilated, damp dwellings and on the ground floor. But these conditions he says had existed a long time prior to the epidemic and can therefore be regarded only as auxiliary factors. Twice a house infection was observed; in one instance, to be sure, confined to two sisters. The other embraced four persons, who became sick in the course of two weeks. Three of these died. Jaeger³ says that an important factor in the spread of the disease is the rapid accumulation of people in cities and towns and a development of sanitary conditions of the dwellings which does not keep pace with this accumulation.

In the present epidemic in New York City, both last year and this, the disease has affected chiefly the people living in the densely populated sections, the lower East Side, or "Ghetto," the lower West Side, and the "Little Italy" section in the vicinity of One Hundred and Tenth Street and East River.

Influence of Age.—So far as the influence of age on the prevalence of infection is concerned, the following statistics may be of interest. Hirsch³ has collected the histories of 1,267 fatal cases occurring in Sweden from 1855 to 1860. Of these, 889 patients were under fifteen years, 328 between sixteen and forty years, and only 50 were over forty. In an epidemic in Bromberg, Germany, of 141 cases, 132 were between two and seven. In an epidemic in Thuringia, out of 180 cases, 160 were under twenty years. Leaving out of account the epidemics among soldiers, epidemics have also been reported in which the cases were mostly in persons between twenty and thirty years of age. Such was the case, for example, in the Italian epidemics in the forties, and in the epidemic in Montgomery, Ala-

bama. In the latter, of 84 patients, 19 were under ten years of age; 23 between ten and twenty; 27 between twenty and thirty; 13 between thirty and forty; 12 over forty years of age.

In an epidemic of cerebrospinal meningitis in Dantzic, Germany, there were 779 deaths. Of these, more than 25 were of children under one year; 88 per cent. were under ten years. In the epidemic in Cologne in 1885-1892 the majority of patients were between fifteen and twenty-five years.

We see from this that the disease at one time affects mostly infants, at other times older children, and at still other times adults. What the reason for this is does not seem at all clear.

Other Predisposing Factors.—A number of writers lay stress on slight trauma as a predisposing cause and state that in many cases a history could be obtained of some injury to the head shortly before the onset of the disease. In our series of cases it was the exception to obtain such a history, although inquiries were always made. When it is remembered that children are constantly receiving all sorts of knocks it will not be surprising if now and then the disease will be found to have been preceded by some slight trauma. But that this is of any influence in determining the infection has nowhere been proved.

Some of the writers on meningitis mention the occurrence of a coryza or a sore throat just before the onset of the disease. (Berdach²²).

Influence of Overexertion.—Huebner²³ says that one of the factors predisposing to the disease is marked bodily, and perhaps, also, mental exertion. This was shown particularly in the military epidemics in France, where it was found that raw recruits unused to hard service were especially susceptible. That the latter statement, at least, is correct seems borne out by statistics from other sources. In the epidemics among the Wurtemberg troops in 1898, Jaeger² found that out of 56 cases, 43 were among the troops of the first year of service, 11 of the second year, and 2 of the third year. But this does not show that it is due to overexertion. If that were the case we should expect far more cases in war than in times of peace, and yet, as we know, cerebrospinal meningitis is not a disease of war. Jaeger also points out that the physical exertion required of the soldiers is carefully graded so that the recruits are only gradually put to hard work.

Virulence of the Meningococcus.—It is possible that a given strain of meningococcus can in some way acquire an increased virulence and so start an epidemic. Since, however, this organism is so slightly virulent for ordinary test animals, we have no way of determining this except by studying the development of the various epidemics.

Studies on Animals.—In the study of cerebrospinal meningitis animal experiments have yielded practically no results of any importance

owing to the fact that most animals are so little susceptible. Mice seem most so, but even these animals must be inoculated intraperitoneally; subcutaneous injections are usually without results. Guinea-pigs are also somewhat susceptible, but not to as high a degree as mice. (Weichselbaum²⁴ (Bettencourt and Franca²⁰). Bettencourt and Franca injected three monkeys with cultures of meningococcus, one by trephining and two by spinal inoculation. They also rubbed a culture on a cotton swab on the nasal mucous membrane of a fourth monkey. None of these methods was followed by infection. Five goats were trephined and inoculated subdurally without effect excepting a slight fever. One goat was inoculated into the frontal sinus and another into the spinal canal, but without effect.

After irritating the nasal mucous membrane by means of ammonia we rubbed cultures of meningococci into the noses of several very young puppies, but did not succeed in producing an infection.

On the whole, practically all reliable authorities report negative results with animal tests.

Cerebrospinal Meningitis in Other Animals.—

There are but scanty references to the simultaneous occurrence of cerebrospinal meningitis among domestic animals and household pets. Magail²⁵ observed an epidemic of cerebrospinal meningitis in Donera, Africa, in 1845, similar to one he had seen in France in 1837-42. The cases occurred suddenly among the soldiers in February. No cause could be found, but it was remarked that an epizootic had broken out among the barnyard fowl two weeks previously and raged among them for two months. Albrecht and Ghon²⁶ in discussing this point say that the cerebrospinal meningitis of horses has been said to be due to the meningococcus. The disease among horses (the so-called Borna'sche Krankheit) was very frequently observed in Saxony in 1894-96. Yet no cerebrospinal meningitis was observed among the people at that time. They think the causative agent of this disease to be entirely distinct from the meningococcus. The same view is held by Siedamgrotzky and Schlegel,²⁷ and by Johne.²⁸

We have made numerous inquiries among the veterinarians and stablemen in New York City regarding the presence of cerebrospinal meningitis among horses. The answer has almost invariably been that no cases of the diseases have been observed for years. Two cases were mentioned as having occurred early in the season. One veterinarian, to be sure, stated that some three years ago he saw about 150 cases of the disease among some 8,000 horses belonging to a street railway company of this city. The statement could not be verified and may probably be dismissed as unreliable.

Insects as Carriers of the Disease.—It has been suggested that the disease is carried from individual to individual by means of vermin or insects. So far as the writers have been able to

discover, the literature contains no reference to this side of the subject; the indirect evidence appears to negative the assumption. This evidence consists in the geographical distribution of the disease, local distribution, season, class of people affected, etc. So far as the geographical distribution is concerned, we have already seen that this is very extensive. Locally, the disease has occurred in high and dry regions and in low, marshy ones; near the coast and far in the interior. The older observers were quite unanimous in believing that conditions of the soil and atmosphere were without influence on the development of the disease (Ziemssen²¹). Although the disease has in general been observed usually among the laboring classes, especially where the people were crowded together, it has often been observed to attack people in the best surroundings. Out of 42 cases reported by Ziemssen, 5 belonged to the upper classes. Holbrook²⁷ says that the cases observed occurred in the best and in the worst homes. Some patients were tenderly cared for, others neglected. They were equally affected.

The vermin theory of infection also presupposes the presence of the meningococcus in the peripheral blood of the patients. Although, to be sure, the meningococcus is frequently found therein, its presence does not appear to be at all constant throughout the disease (Elser²⁸). Even when present it does not appear to be so abundant that fleas or bedbugs would be likely to ingest one very often. The length of time which sometimes elapses between primary and secondary cases of cerebrospinal meningitis seems also to argue against this mode of infection. So far as mosquitoes are concerned, it will suffice to say that the disease is prevalent in this country at a season when there are practically no mosquitoes. It would be difficult, if not impossible, to reconcile all these facts with the assumption that an insect or parasite is liable to transport the disease.

Immunity and Susceptibility.—So far as immunity is concerned, there is but little literature. North²⁹ gives one undoubted case in which there had been an attack twenty-five months previously. Another patient had the disease in August, 1808, and again in May, 1810. Herman and Kober⁴⁰ report a girl who had the disease in May, 1886, and died in the second epidemic the following year. Numerous instances are recorded in which several members of one family were affected. Friis⁴¹ observed house and family epidemics which affected two to five persons. Singer⁴² reports eight deaths in one family. Baxa⁴³ observed four cases in one house, three in another and two in a third. Brookes⁴⁴ also reports eight cases in the different branches of one family, in another there were five, and in still another family, four cases. Ziemssen²¹ reports the case of two sisters who were affected. Gifford²⁸ reports five cases in one family, one after another within a week.

In the series of cases studied by us, in two instances the disease had occurred in the same family a year ago (Cases 19 and 52). It is possible that cases 11, 13, 37 and 54 may also be instances of special susceptibility, for in these all the children of the family developed the disease. The same may apply to case 54, in which four out of five children were attacked. The presence of a special susceptibility is perhaps also indicated by the fact that in most of the families investigated, only one or two children out of several were affected. On analyzing the histories of 45 families in which a number of children is noted, we find that these families had a total of 210 children. Of these 210, 63 became infected, while 147, who were probably equally exposed to infection, escaped. Since our own investigations have shown that many healthy persons in contact with cases of cerebrospinal meningitis may harbor meningococci in their noses, it would appear that these persons were more or less immune to such infection. This immunity, of course, can be conceived as being either local (nose or meninges) or general.

Communicability.—There seems no doubt among the majority of observers as to the transportability of the disease, but there is no unanimity as to how this is effected. W. H. Draper⁴⁵ observed an epidemic in Carbondale, Pa. He found that the disease had begun in two places; 1st, where there had been a camp of soldiers, and 2d, where some tramps had carried away things belonging to dead soldiers. Hirsch² expresses himself as follows: "Connecting with the infective nature of epidemic meningitis is the question of its communicability or contagiousness. Most observers have answered it quite decidedly in the negative on the ground of their experience, that those who have come into close and continuous contact with the sick, such as medical attendants and nurses, have been very rarely attacked, and that patients suffering from it had been admitted into the wards of hospitals without any extension of the disease to the other patients ever taking place. On the other side, there are facts that tell in favor of communicability, the most notable of these being the observations made in the epidemic of 1837-40. In these epidemics the disease would seem to have been transported by infected troops from place to place, sometimes even to distant garrisons, where it did not confine itself to the division of troops originally, but spread in epidemic form to several other regiments. Baudin⁴⁶ thinks the disease contagious and has collected the following interesting points:

In 1841 a battalion of troops marched from Pont Saint Esprit, where the disease raged, to Marseilles, which was not yet infected. Shortly afterward two other battalions of the same regiment returned from Algiers and were distributed among the barracks with the first battalion. A little later a case of meningitis broke out among the second battalion.

In 1847 a division of troops, who had suffered much from meningitis at Avignon, was sent to Nîmes. No further cases occurred here among them. But some healthy troops which had arrived from Africa also arrived at Nîmes, and among these cases of meningitis broke out soon afterward.

In Orleans it was twice observed that soldiers sleeping next one another were affected. The two cases outside of the garrison were the mistress of one of the soldiers and her child. In St. Etienne, in 1840, two soldiers who shared one bed were taken sick, one within forty-eight hours of the other. In one of the barracks a soldier returning from guard duty lay down in a bed from which another who had been taken ill with meningitis had just been removed. The second soldier became infected and died. In Aignes-Mortes, out of the people living in one house five were affected, of whom four died. In Strasbourg, among others, there were affected two surgeons, one clinician, five military nurses, seven children of soldiers and several workmen employed about the barracks.

While the disease raged in Strasbourg a regiment from there was sent to Schledtstadt on January 21, 1841. On the twenty-ninth of that month the first case appeared in that town, the child of an innkeeper near the barracks, the inn being much frequented by the soldiers. On February 6, two children, the daughters of the butcher supplying the garrison with meat, were affected. Hirsch² describes a remarkable outbreak in Algiers in 1840, a season when the disease was more than usually prevalent among the troops in France. Algiers is the only spot on African soil where the malady has ever been seen; it is in intimate relations with France, and importation of the disease is made all the more credible by the fact that its first appearance there was among the French troops, with subsequent extension to the civil residents. Horner⁴⁷ suggests that in the epidemic in the hospitals of Washington, D. C., in 1864-5 the disease had been introduced from the seat of the war. Broussais⁴⁸ has come to quite different conclusions regarding the spread of the disease. He says that the epidemic affected chiefly the military. It began at two points in France in 1837, namely, Bayonne and Narbonne. From these it spread in somewhat radiate fashion. The disease did not seem to be due to a transportation of the virus through the marching regiments, for the disease crossed the Italian frontier and raged in Italy in 1840-41. In no instance could direct contagion be demonstrated. Out of 1,041 cases there were 592 deaths (1:1.75). Brooks⁴⁴ investigated the history of 112 cases and says: "So far as contagiousness is concerned, the answer from the different reporters was universally 'No.' The only evidence that supported the theory was that in a few instances more than one case occurred in the same family. The evidence becomes less valuable, however, when we

find that these cases occurred almost simultaneously with each other, or were so far separated as not to show any relationship with each other. One of the very best studies on the spread of the disease was made by Peterson,⁴⁹ who investigated the histories of the cases occurring in Berlin in 1895-6. By extremely careful work he was able to connect a series of 23 cases one with another, thus showing a high degree of communicability of the disease.

Original Investigations.—The clinical data on which this study is based were limited to cases occurring two or more in one house in the period from January 1, 1905, to June 1, 1905. This limitation was maintained because it was felt that their careful analysis would be more apt to throw light on the mode of transmission than would an analysis of the other cases.

The bacteriological study, on the other hand, while it included some of the cases of the clinical series, sought especially to obtain data on the occurrence of the meningococcus in the nose. For this reason it embraced an extensive series of individuals, including not only cases of cerebrospinal meningitis, but also persons apparently perfectly well.

Clinical Study.—The record of cases of cerebrospinal meningitis, which is under the direction of Dr. Billings, is kept on the card catalogue system and arranged by streets and numbers. It is therefore a comparatively easy matter to run over the cards and note the names and addresses where several cases have been reported from one house. The cards from January 1st to June 1st numbered just about 1,500, and among these, 88 instances (representing 200 cases) of multiple cases were discovered. Lack of time prevented the investigation of all these 88 instances, but the following results, obtained by a careful study of 58 instances, would in all probability apply to the remainder.

1. At 488 Eleventh Avenue, Johnny, ten years old, died in March, after an illness of one week. He was not sent to the hospital. On May 2, his brother, Tommy C., aged eight years, developed the disease, dying on the following day. There are three other children in the family. Besides these cases the disease appeared in another family in this house. Ed. M., five years old, was sick from March 17, about one week after J.'s onset. There are two other children in the M. home. No further contact can be discovered except that the children played together in the street.

2. Michael K., two years old, of 64 Amsterdam Avenue, became ill with cerebrospinal meningitis April 24, and died May 8. He was not taken to a hospital. On May 3 his little sister Agnes, aged four years, became ill with the disease. She has since recovered. There are three other children in the home. Agnes did not sleep with Michael.

3. Nellie L., aged three years, of 317 East Thirty-eighth Street, became ill with cerebro-

spinal meningitis on March 25. Two days later, Mary, aged eleven years, developed the disease and died in five days. Nellie recovered. There are six children in the family, which occupies four rooms. There was another case of cerebrospinal meningitis in the house (but the people have moved and it is impossible to get data about it). It was reported April 27 and was a child one year old.

4. Celia M., in 425 West Thirty-first Street, 9½ years old, was taken ill with cerebrospinal meningitis on March 3, and died March 4. Five other children at the time, the family living in four rooms. Previous to the illness all these children slept in one bed. On April 5 one of these developed the disease and died April 6. There are no cats or dogs. There may be bugs.

5. Michele T., aged five years, of 161 West Twenty-seventh Street, died of cerebrospinal meningitis on April 1, after an illness of twenty-four hours. There were five other children, the family living in two rooms on the fourth floor. On April 10, R. F., aged 11½ years, living on the second floor, developed the disease and was taken to Bellevue the same day. There is very much intimate intercourse between these two families, children going into each other's homes all the time. The F. family also have two rooms, fairly clean. Two other children still left. These were not affected.

6. Katy S., aged sixteen months, living at 347 East Seventy-third Street, died of cerebrospinal meningitis on March 22, after an illness of one day. There is one other child. Among those who came to the funeral was Mr. P., living on the same floor. None of the P. children or Mrs. P. attended. Peter P., aged three, developed the disease and died on March 30. There are three other children in the family, which lives in three rooms; mother and father go out to work, the smaller children being taken care of by a family across the street. Interval between cases, six days. There is another case of cerebrospinal meningitis on the ground floor of the same house. Marv S., aged thirteen years, the daughter of a small shopkeeper (furniture), was taken ill February 16; she died March 19. Typical history. Two other children, ten and twelve years. No direct contact can be discovered between this family and either of the preceding.

7. Elizabeth S., 402 East Sixty-fifth Street, 2½ years old, suddenly developed cerebrospinal meningitis on the night of March 20. The child did not play out in the street with other children, but was taken out daily by her mother. The day preceding her illness she had played on the roof in some sand. Her mother was hanging out the wash. Playing in the same heap of sand was a Johanna St., age 3½ years, living in the same house (model tenement). Johanna was taken sick two days after Elizabeth and died April 8. The St.'s keep one dog. Both families

have excellent clean apartments, plenty of light and air.

8. At — Hospital a chronic rheumatic who had not been outside the hospital for many months suddenly developed cerebrospinal meningitis. Three weeks before this there had been two cases of the disease on the same hall. All of the patients, including the rheumatic, had private rooms. Connection between these cases is apparently through the nurse, he having attended all three cases.

9. Bartholomew M., age twenty-three years, died of cerebrospinal meningitis on January 31 after an illness of two days. He was removed to the hospital the day he was taken sick. The young man boarded with Mrs. Hart, the housekeeper of the building. This woman sweeps and cleans the halls, etc., daily, and sets out the ashes, but does not come in contact with the tenants any more than an agent collecting the rents. On March 20, Bridget L., aged twenty-one years, one of the tenants living on the next floor above, developed the disease. She has since recovered. There are two children in the L. family; none in the H. No cats in either home.

10. Joe F., aged four years, of 593 Greenwich Street, rear house, was taken sick with cerebrospinal meningitis on March 7 and died March 9. The family consists of the parents and two other children. They occupy two rooms. On March 11, John C., aged five years, a playmate of Joe F., developed the disease and died March 14. Two other children in the family. Two rooms. Filthy; no cats. Joe's most intimate chum was another boy named Buster. This boy, however, was not attacked by the disease.

11. Isaac C., 174 Clinton Street, aged ten years, developed cerebrospinal meningitis about three months ago on a Saturday afternoon. That same evening his brother Moe, aged four years, developed the disease, dying within twenty-four hours. On Monday two other Thereupon all three were sent to Gouverneur Hospital, where they finally recovered. When Isaac and Moe became sick on Saturday, the parents sent Louis and Philip out of the house to some relatives on Sunday. Nevertheless they developed the disease in the latter's house the next day. In this house these two children slept together with the other children in that family. None of the latter, however, were affected.

(To be Continued.)

Case of Transposition of Viscera Showing Heredity.—B. M. RANDOLPH (*N. Y. Med. Jour.* and *Phila. Med Jour.*, Nov. 18, 1905) reports a case of transposition of viscera which is interesting on account of the heredity history. The heart, liver and lungs showed complete transposition, while the area of splenic dulness could not be definitely determined on the right side. The clinical findings were supplemented by an X-ray photograph. The interesting feature connected with the case is that the maternal grandfather of the case presented the same phenomena, while the mother, sisters and brothers are all normal.

RESULTS OF COLD IRRIGATIONS AS COMPARED WITH WARM IRRIGATIONS IN THE TREATMENT OF GONORRHEAL URETHRITIS AND ENDOMETRITIS.

BY E. C. SHATTUCK, M.D.,
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THE purpose of this paper is to report the results obtained by the use of cold irrigations in 277 cases during a period of five months as compared with the results obtained by the use of warm or hot irrigations in 295 cases during a period of five months. These results cannot be attributed entirely to the temperature of the solutions for the reason that various antiseptics were used in the solutions at different times. By cold irrigations is meant, solutions of the temperature of ordinary tap water. The temperature probably varied a little with changes of weather as did also perhaps in a greater degree, the warm irrigations, for other reasons. As no thermometer was used, it is impossible to say how much the temperature varied from day to day.

The cases consisted of gonorrheal urethritis, vaginitis and endometritis, without or with complications. The complication which retarded the cure most was chronic metritis. All cases were positive microscopically on beginning treatment and were not discharged cured until negative both clinically and microscopically.

The method of irrigation was as follows: Vaginal douches with ordinary douche points followed by urethral irrigations by means of a reflux silver catheter were given twice daily. Intra-uterine or intracervical irrigations were given once daily, using a return current metal catheter, except in cases where the uterus was not involved. The treatment was reinforced by vaginal tampons, once a day, of 15 per cent. ichthyol in glycerin, or 5 per cent. carbolic acid and alum in glycerin.

The antiseptics which were added to the solution were, at different times, lysol in $\frac{1}{4}$ to $\frac{3}{4}$ per cent. solution, potassium permanganate 1-3,000 to 1-2,000, and for intra-uterine irrigations, zinc sulphate 2 per cent. solution and potassium permanganate 1-2,000. During half of the first period, while warm irrigations were being used, the antiseptic was lysol; during the latter half potassium permanganate was used. During the period of cold irrigation, potassium permanganate in solutions of 1-2,000 was used almost entirely.

The results, in general, obtained while warm irrigations were being used were fair. In cases where intra-uterine irrigations were given, there was, as might be expected, an occasional case of uterine colic.

My reasons for trying the cold irrigations were as follows: First, the cases of chronic metritis, in spite of all treatment did not make satisfactory improvement; second, it was desirable, if possible, to reduce the time of treatment; third,

I had used cold intra-uterine irrigations when hot water was not available, had seen no bad results and knew that they were used to some extent by hydrotherapeutic authorities in similar cases.

The following tables give the month, number of cases and average days of treatment:

FILIPINAS.			JAPANESE AND OTHERS.		
Month.	Cases.	Average No. of Days.	Month.	Cases.	Average No. of Days.
March 12/3	16	47	March 12/31	31	25
April.	30	41 6/25	April.	43	10 31/43
May.	33	38 5/4	May.	30	15
June.	6	33 17/26	June.	37	18 13/37
July 1/12	11	36 7/11	July 1/12	11	27
Total.	135	Average, 36 1/2	Total.	149	Average, 15 1/2

Of the above there were observed, according to months, as follows:

March, 2 cases of chronic metritis, 101 and 239 days resp., both Fil.
April, 2 " " " " 145 " 117 " " 1 Fil., 1 Jap
May, 1 " " " " 113 days, Filipina.
June, 2 " " " " 130 and 133 days, resp., both Fil.
July, 1 " " " " 114 days, Filipina.

FILIPINAS.			JAPANESE AND OTHERS.		
Month.	Cases.	Average No. of Days.	Month.	Cases.	Average No. of Days.
July 12/31	30	53 2/3	July 12/31	18	24 5/18
August.	29	34 17/9	August.	28	21 4/7
September.	28	25 3/14	September.	27	27 24/27
October	42	12 20/22	October	18	20 11/18
November.	43	26 6/7	November.	19	18 7/19
Total.	171	Av., about 31	Total.	124	Av., 20 53/124

Of these there was in August one case of chronic metritis, lasting 32 days, in a Filipina.

It is necessary to explain that the cases are taken up in the month during which treatment was commenced and, therefore, most cases of chronic metritis taken up in the first period were discharged during the second period. Attention is invited to the fact that but one case of chronic metritis occurred during the second period of observation.

The average number of days for Filipinas was decreased from 36 $\frac{1}{2}$, during the first period, to thirty-one days during the second period, and was increased from 15 $\frac{1}{2}$ days during the first period to 20 $\frac{1}{2}$ during the second period for the Japanese. There were also cases of uterine colic during the latter period about as frequently, I should say, as during the first period. One case of peritonitis occurred during the second period. There were no deaths in either period under observation.

The figures here shown do not appear to me to warrant any positive conclusions. I therefore submit the report for discussion or criticism without further remark.

MEDICAL PROGRESS.

MEDICINE.

Tolerance for Purin Bodies in Gout.—There can be no doubt that the relation between gout and uric acid is a very intimate one, for it has been found that if a patient predisposed to gout and kept for a long time on a diet free from nucleins, takes a single large amount of meat, an acute attack will often follow. C. von NOORDEN and L. SCHLIEF (*Berl. klin. Woch.*, Oct. 9, 1905) have shown that there is a certain tolerance for nucleins in gout, just as there may be a tolerance for carbohydrates in diabetes. The following experiments were made on a large number of patients: Four hundred grams of meat were added to the diet and the amount of uric acid extracted estimated for several days. In almost all instances less was excreted than under normal conditions. If only 200 grams were allowed, a sufficient amount was often voided, and the patients did not suffer from a relapse. It is, therefore, important for the comfort of the patients to determine in every case the exact degree of tolerance and to restrict the diet accordingly.

Typhoid Perforation.—From a study of the subject, R. H. HARTE (*Journal A. M. A.*, Oct. 28) concludes that perforation is a much more common accident in typhoid fever than is generally supposed, it being the cause of death in one out of every three or four fatal cases. It occurs most frequently between the fourteenth and twenty-first day of the disease, and does not appear to be more common in the severest than in the mildest types of the disorder. The ileum is its most frequent site, the majority of perforations occurring within 12 to 18 inches of the ileocecal valve. The next most common localities are the appendix and the cecum. In a large percentage of cases pain is present, though it may be only transitory. In about half the cases the onset is sudden, severe and with increasing intensity, localizing itself in the right iliac fossa. Tenderness and rigidity are present to a greater or less extent in all cases. The latter Harte considers a most valuable sign, never absent except in patients with very large and pendulous abdomens. If perforation is suspected the temperature should be taken every hour to verify any marked variation in this symptom. Distension is a late symptom, usually noticed some hours after the perforation has occurred. Obliteration of liver dulness is not regarded as a reliable sign. The study of the leucocytes is of little use, though occasionally their increase may make the diagnosis more positive. The differential count is of no practical value. Before making a positive diagnosis, pain caused by pleurisy, pneumonia, cholecystitis, acute gastrointestinal indigestion, iliac, thrombosis, appendicitis, peritonitis, renal calculus, distended urinary bladder, or even a hemorrhagic exudate into the abdominal muscles must be carefully considered, as any of these may simulate perforation. Nature may sometimes close perforations, but the only rational course when they occur is surgical intervention. No case is too desperate for operation, as the worst are sometimes saved. In case of doubt, when symptoms point to perforation, the safest course is to operate. Even when no perforation is found, patients, as a rule, seem benefited by operation. With the diagnosis once made Harte knows of no other condition, except possibly hemorrhage, in which speed in operating is so important as in this. Everything should be prepared beforehand so that there may be no delay when once the knife is taken in hand.

The Psychoses of Heart Disease.—W. HOUZE (*Journal A. M. A.*, Oct. 28) calls attention to the mental

disturbances associated with cardiac disease, which, he thinks, have been rather neglected by authors of textbooks, the heart disease being regarded either as a complication of the insanity, or the organic symptoms predominating, they either overshadow the slight mental ones or so disable the patient that he can be readily cared for in the wards of a general hospital where psychic derangements are considered as only secondary and subordinate to his bodily ailment. In the severer cases this may do no harm, but in the slighter ones it is bad, as the mental disorder which should be attended to is likely to be overlooked. He recognizes four principal types, more or less shading into each other, as follows: (1) Panicky conditions alternating with some depression and irritability, without active delusions or hallucinations. In such cases the patient is usually terrified by the consciousness of cardiac sensations and irregularities. (2) Delusive symptoms based on misinterpretations of local cardiac phenomena, such as pain. (3) Active hallucinations and delusions from circulatory disturbances involving sensory organs. (4) Dementias from secondary lesions of the brain. Case histories illustrating the different types and the relation of the heart lesions to the mental symptoms are given. It is not contended that the heart disease was the sole cause in every case, but rather that it was the exciting cause, except wherein the cardiac troubles were rather the effect, and especial emphasis is given to the relationship of mental improvement to the treatment directed to the heart trouble. During a residence of nearly two years in a large State hospital the author observed but few of these cardiomentals cases, and the inference is that they are more often treated by the internist than by the alienist, and their psychic side has thus been minimized.

Modern Problems of Nutrition.—Prof. von NOORDEN (*Journal A. M. A.*, Oct. 28) reviews the history of several of the problems of metabolism in recent years. He states that a number of problems, of interest alike to the physician and to the pathologist were left unsolved during the earlier periods of quantitative investigation, and that it is only now that, thanks to the better technic of recent times, exact methods are available for their estimation. He takes up the metabolism of energy and states that the daily food must have certain caloric values if the weight of the body shall neither increase nor diminish. With the increase of muscular work the amount of energy consumed increases in proportion. Children require a relatively high, and old people a relatively low, exchange of energy. Von Noorden emphasizes the necessity for further extended observations of the personal equation in this matter in order to provide a clear "mathematical" insight into the condition now designated by the term individuality. He referred to the experiments of Rubner and Pflüger, which tend to show that when the food contains an excessive quantity of proteids the energy exchange rises considerably above the average. He mentions briefly several experiments made by himself and his assistants, and states that among other things one important fact has been established, viz., that increase in energy exchange follows the administration of thyroid gland substance. He discusses metabolism energy in people who are run down by chronic disease or by insufficient nourishment and the energy exchange in fevers and in diabetes mellitus. He says that the exact form in which hydrogen is retained in the body is still entirely unknown and that a knowledge of this would throw some light on the changes which molecules of albumin undergo in the body. He reviews some of the work which has been done recently in physiologic chemistry, referring especially to the amino acids and to glycochol. He concludes by stating

that great problems still await solution and that medical science looks to America for many enthusiastic workers in this field.

Vibratory Winking of the Eyelids in Renal Disease.

—A clinical sign that may be of decided diagnostic significance in disease of the kidney at any early stage in the development of the morbid process is described by G. ULLMAN (*Comptes Rendus de L'Acad. des Sciences*, Sept. 11, 1905). It consists in a regular vibratory closure of the eyelids, occurring in nephritic subjects, usually in the beginning of the disease. The vibration affects usually the upper lids, most frequently one lid; rarely it occurs in the lower lids. If it occurs at the external commissura, the entire eye will share in the movement. The duration of the attacks is thirty minutes and sometimes more. The attacks may often be repeated for a number of days and then cease. There is a marked variability in different individuals with respect to the appearance of this symptom, which does not show itself infallibly in all cases affected or threatened with nephritis. This condition has not yet been adequately explained. A theory of auto-intoxication has been suggested, placing this symptom in the same category with the myosis that frequently occurs in renal disease.

Pathology and Prevention of Secondary Parotitis.

—In a full discussion of this subject, R. T. H. BUCKNALL (*Lancet*, Oct. 21, 1905) concludes that every case of secondary parotitis, regardless of the primary condition is due to an ascending infection of Stenson's duct. It has been shown that the healthy parotid duct cannot be infected either by smearing its orifice with micro-organisms nor by introducing them into the lumen, but if the organisms are excessively numerous or virulent, if the general vitality of the animal has been previously depressed, or if the normal secretion of the parotid has been altered in quantity or quality, an ascending infection of the duct leading to the production of parotitis, showing all the appearances which have been observed in secondary parotitis in the human body, can easily be produced. By referring to the list of disorders which have been complicated by this affection it becomes evident that all present one common feature, which is that they are all particularly likely to be accompanied by the conditions previously stated as necessary for the production of duct infection in animals. In addition, the comparative frequency with which parotitis occurs in connection with each individual disorder varies directly with the degree and frequency with which these predisposing conditions are met with in each instance. This rule applies equally to the surgical aspect and to the medical. The prophylaxis resolves itself into the scrupulous cleanliness of the oral cavity when it is known that predisposing factors are present.

Some facts Concerning the Early Diagnosis of Pulmonary Tuberculosis.—Though during the last decade efforts have been concentrated upon education and prevention, yet in the year 1904 the death-rate from tuberculosis in New York State was unexplainably increased by more than one thousand. JOHN H. PAVOR (*Med. Rec.*, Nov. 25, 1905) contends that concerning the early diagnosis of tuberculosis the education in medical schools is faulty and the teaching of text-books inadequate and misleading. This may be due to the recent distinctive prominence given to laboratory methods and the tendency to discard the methods of the clinician. The unwarranted dependence upon the presence of the bacillus in the expectoration and the exaggerated idea of its importance as the only reliable single sign have done immeasurable harm. Mis-

understanding of the premonitory symptoms is widespread. Those considered are usually indicative of advanced disease. The classical symptoms almost invariably presented in combination are loss of appetite, chlorosis or anemia, loss of weight, cough with or without expectoration, hemorrhage and fever. It is extremely rare that all of these are associated at an early time. Persistent fever, even with rest, is the most reliable and constant guide. The rise of temperature occurs most frequently in the evening, reaching its height between five and eight o'clock, but may occur at noon. The influence of external temperature must be considered, as cold weather certainly controls and has an influence upon the febrile curve. In children the temperature range is apt to be higher and other symptoms more marked. Loss of weight may be gradual or rapid, great or slight. The standard of weight should not be fixed at the highest ever attained by the individual. In truly incipient and favorable cases the loss of weight may be very slight or nil. The loss of appetite and indigestion are more important as bearing upon the prognosis. Chlorosis and anemia are much overestimated as early symptoms, and are frequently due to other causes. Practically all text-books lay stress upon cough as an early and most constant symptom. Cough is apt to be due to pharyngeal irritation, and subsides after local treatment. Many times the so-called hacking cough is nervous in origin. Cough as an early sign of tuberculosis has been much exaggerated, but it performs the valuable service of directing attention to the chest. A dry cough, accompanied by some pain and irritation in the chest, is of value and is apt to be associated with localized pleurisy. When bronchial congestion with increased secretion is present the cough is more distinctive; however, it is not usually of a hacking character. Hemorrhage during any stage of pulmonary tuberculosis rarely occurs in the Eastern or Middle States. Its occurrence is almost a positive sign. The three important symptoms which may be reliable guides are hemorrhage, fever and loss of weight, when they cannot be otherwise explained. In eliciting the physical signs of incipient tuberculosis reliance must be placed almost entirely in percussion and auscultation. A proper interpretation of these requires conscientious practice and study. Cogwheel respiration may have little diagnostic value except to arouse suspicion. It is often purely nervous in origin. One of the most reliable signs of slight consolidation, and one which is surprisingly neglected, is the transmitted whisper produced by the patient whispering the word ninety-nine. The variation in pitch and the prolongation of sound are more easily detected than when the speaking voice is employed. Finally, it must be remembered that the duration of the expiratory sound cannot be properly measured if the patient is not allowed to breathe naturally and preserve the rhythm.

The Influence of Posture on the Normal Cardiac Sounds.—WILLIAM GORDON asserts that change of position affects the normal heart sound (*Brit. Med. Jour.*, Nov. 18, 1905). The change produced is an alteration in the character of both sounds. It will generally be found that in the upright position the first sound is sharper, whereas the second sound is duller than in the recumbent position, so that in the former the sounds resemble each other more closely than in the latter. These changes are accounted for by the action of gravity. If the position of the valves of the heart in the upright and recumbent positions are considered it becomes obvious that when the first sound is produced a weight of blood is resting on the mitral and tricuspid valves if the person examined be recumbent.

but that if the person be erect no such condition exists. Again, when the second sound is produced a weight of blood is resting on the aortic and pulmonary valves if the person be erect, but if recumbent no such weight rests on these valves. From the foregoing it is deduced that a valvular sound varies according as a fluid weight does or does not rest on the valves producing it. Experimentally this can be proven. Posture also affects the deep cardiac dullness. In the erect position the cardiac dullness drops nearly a rib's breadth, on an average, further from the clavicle than in the recumbent position, and becomes about $\frac{3}{4}$ in. wider from side to side at the level of the fifth costal cartilage. The increase is greater to the right than to the left, that to the left being about one-third inch.

An Aid to Prognosis in Typhoid Fever.—In forming an opinion as to the chances of recovery or of death the experience of fifteen years has led ROBERT M. SIMON (*Brit. Med. Jour.*, Nov. 18, 1905) to note the amounts of urine passed in the later stages of enteric fever as a guide of the utmost value. Polyuria is a well-known symptom at the end of nearly all febrile disorders, but in connection with typhoid fever it is a very marked and conspicuous condition. Toward the beginning of the fourth week, seldom earlier, sometimes a little later, the urine increases in quantity from about 30 ounces to 60, 80 or even 100 ounces daily. From extended observation it has been found that polyuria occurred not only in every case that was doing well, but also in many cases of great severity in which no general improvement or amelioration of symptoms could be observed. Even in severe cases, if polyuria occurred, the patients all recovered; nor was it necessary in order to estimate the value of polyuria as a means of prognosis that the patient should be in a state to voluntarily empty the bladder. Should absence of polyuria exist in a case supposed to be doing well, the attaching of too much importance to the general improvement is to be deprecated. In no case in which polyuria was noted did perforation occur, and in no case was there hemorrhage of any moment after polyuria was established. Furthermore, the occurrence of relapse is of the most extreme rarity when polyuria has once begun.

PATHOLOGY AND BACTERIOLOGY.

Inhibition of Bacterial Growth.—When a freshly prepared culture of bacteria is examined from time to time, it will be found that the germs increase only up to a certain limit. H. CONRADI and O. KURPJUWEIT (*Munch. med. Woch.*, Sept. 12, 1905) have discovered that there are certain inhibitory principles which form in every bacterial culture from the first hour on and which are of the nature of enzymes. The inhibitory power of these enzymes is greater than that of carbonic acid, for a dilution as high as 1-3,200 will still prevent the growth of bacteria. The enzymes of one germ will also inhibit the growth of other germs. They are easily destroyed by heat, are insoluble in alcohol and diffusible, but do not pass through bacterial filters. They are thus entirely distinct from the bactericidal substances which form through autolysis and never manifest bactericidal properties by themselves.

Bacteriology of Streptococci.—An excellent culture medium to quickly differentiate between the pneumococcus and the streptococcus has been discovered by E. FRAENKEL (*Munch. med. Woch.*, Sept. 28, 1905) in the Condradi-Drigalski medium, originally recommended to quickly separate typhoid from colon germs. The pneumococcus will grow very poorly in the form of small colonies which do not

alter the color of the medium, while the streptococcus forms a dense grayish-white growth, at the same time turning the medium intensely red. If the pneumococcus has been grown for some time on artificial media it may form chains and thus closely resemble the streptococcus; on the Drigalski agar, however, it will rapidly regain its original lanceolate shape. The technic of examining suspicious material would thus be as follows: A culture is first made on blood agar. If green colonies appear they are either pneumococcus or *Streptococcus mitis*. By further planting on Drigalski agar these two can be easily differentiated. This medium is also excellent for the *Streptococcus mucosus*, since this will grow abundantly and will form characteristic, mucoid colonies in twenty-four hours, without changing the color. If a small amount of sterile fat is rubbed upon the surface of the plates, the growth will be still better. The identification of the third form, the *Streptococcus erysipelatus*, does not require Drigalski plates, since the colonies on blood agar are surrounded by a lighter zone, which is caused by the hemolytic action of the germs upon blood and is characteristic.

Bacteriology of Paratyphoid.—During the course of an epidemic of protracted fever, a bacillus was isolated from the feces of the patients by A. SCHORTLIUS (*Munch. med. Woch.*, No. 44, 1905) which corresponded closely to the germ described as paratyphoid bacillus. The surface colonies on agar resembled those of colon; milk was not coagulated, but cleared up after weeks and indol could not be detected even after weeks. Litmus whey first turned red, but after several days again blue; glucose was split up and neutral red decolorized. On potatoes, the bacillus formed an abundant yellowish-brown growth, and on Drigalski agar, blue colonies. The appearance of the stab cultures on gelatine is not always the same, so that it is hardly proper to speak of characteristics here. A good culture medium to differentiate the bacilli from typhoid is Drigalski's agar, since they grow more rapidly and form colonies with depressed center and a distinct peripheral zone, consisting of zooglia. The neutral red agar will differentiate the two forms of paratyphoid from typhoid and Barsiekow's medium from colon. To differentiate the two forms of paratyphoid from each other, potato is most serviceable, since type B grows much more profusely. Clinically, the cases resembled typhoid very accurately. The serum of the patient's blood agglutinated the paratyphoid bacillus in much weaker dilution than type A or typhoid.

The Blood After Operation.—A rise of temperature of 1° F. occurs very commonly after operations, particularly during the first twenty-four hours. F. I. DAWSON (*Edin. Med. Jour.*, November, 1905) has also found that there is almost invariably an increase in the number of leucocytes, independent of the number of red cells. This increase is caused chiefly by the enormous increase both in proportion and in absolute numbers of the polymorphonuclears, while the lymphocytes are decreased in practically every case. In a small proportion of cases, a faint glycogen reaction could be obtained. In discussing the possible cause of the leucocytosis, the author states that the preponderance of polynuclear cells and the occasional presence of the glycogen reaction make it highly probable that a certain amount of unavoidable infection is responsible in almost every instance. It is admitted that the absolute exclu-

sion of micro-organisms from wounds is impossible, and that a very slight infection would be sufficient to account for the blood changes. If the leucocytes do not decrease considerably by the second day there is probably something more than the ordinary reaction, and the wound may really be turning septic. The same conclusions are justified if there is a secondary rise.

Bacteriology of the Accessory Sinuses of the Nose.

—As the result of a most careful bacteriological examination C. J. LEWIS and A. L. TURNER (*Edin. Med. Jour.*, November, 1905) conclude that the organisms found in the healthy nasal cavities are usually of the same variety as those occurring in abnormal conditions of the nose. The pus obtained from some cases of antral suppuration may combine organisms similar to those occurring in the buccal cavity. Occasionally bacilli distinctive of dental caries may be isolated from the pus of antral abscesses. The healthy sinuses are probably sterile, but in suppuration three types are commonly encountered: Streptococci, staphylococci and pneumococci. In chronic suppuration, streptococci were found in 80 per cent., while in the more recent cases they occurred in 60 per cent. On the whole, virulent germs are found twice as frequently in acute cases than in chronic. The bacteriological examination corroborates the clinical observation that the antrum is more frequently infected by way of the nose. Nasal polypi occur more often in cases of associated sinus suppuration than in simple cases of sinus abscess. Recent cases of uncomplicated antral suppuration respond more readily to treatment by lavage than those of a chronic type.

Retroperitoneal Teratoma.—A case of teratoma of the abdominal cavity, remarkable not only because of its rare occurrence, rapid growth and total absence of symptoms until three weeks before death, but because within its substance there was found a chorion epithelioma, is reported by C. M. NICHOLSON (*St. Louis Med. Rev.*, Oct. 21, 1905). The post-mortem examination was as follows: On opening the cavity of the abdomen and cutting through the posterior peritoneum and transversalis fascia a fibrous capsule enclosing a semi-solid mass and adherent only in the median line and to the right kidney was found. Not without much difficulty could the tumor be removed, so intimately was it attached to the structure, anterior to the vertebral column. The abdominal aorta from the first dorsal vertebra to the fourth lumbar was closely attached to the growth. The gall-bladder was distended, evidently due to pressure on the common duct. Neither the lumbar glands nor the kidneys were enlarged, although the right kidney was adherent to the tumor. The liver, though very slightly enlarged, showed evidence of involvement. The heart and pericardium were normal. The lungs contained two or three hundred nodules. The tumor weighed a little less than two pounds. It was right-angled and lobulated, the lobules being smooth and extending in different directions. On cutting, the tumor was soft, the anterior inferior extremity being partially cystic. Some of the cysts were as large as a hazelnut. The remainder of the growth appeared solid. The outer surface of the tumor was covered with a distinct fibrous capsule. Paraffin section of the Zenker fixed tissue showed a very complicated mass. Portions of organs were found corresponding in embryonic origin to all the germinal layers. Skin, cutaneous organs, central nerv-

ous system, peripheral nerves, represented the epiblast. Mucous glands, tubes, cysts, with epithelial lining, were indicative of the hypoblast. Bone, cartilage, fibrous tissue constituted the mesoblastic structure.

A Ready Method of Differentiating Streptococci.

—As a result of investigation in the study of streptococci, M. H. GORDON (*Lancet*, Nov. 11, 1905) found a number of tests available for differentiating streptococci. Of these tests the following nine were selected for routine employment: (1) Clotting of litmus milk in three days at 37° C. (2) Reduction of neutral red broth during incubation anaerobically for two days at 37° C. (3) Production of an acid reaction in three days aerobically at 37° C., when cultivated in slightly alkaline broth containing 1 per cent. of saccharose. (4) Ditto, but lactose. (5) Ditto, but raffinose. (6) Ditto, but inulin. (7) Ditto, but salicin. (8) Ditto, but coniferin. (9) Ditto, but mannite. Streptococci that decompose mannite with an acid reaction may with advantage be also tested in the same way against sorbit, glycerin, and isodulcit or rhamnose. The broth used in these tests was ordinary beef broth freed from sugar by cultivating *Bacillus coli* therein for three days at 37° C. and then sterilized, filtered, rendered slightly alkaline, and tinted with litmus. A more convenient and cheaper medium consists of distilled water containing flemco, 1 per cent.; peptone, 1 per cent.; sodium bicarbonate, 0.1 per cent., and 10 c.c. of a 10 per cent. water solution of ordinary solid litmus. Altogether 300 streptococci of normal saliva were subjected to the nine differential tests. As a result they could be divided into forty-eight different types. In the examination of feces by Dr. Houston the test with coniferin was omitted. By means of the eight remaining tests it was possible to distinguish forty different types. A large number of streptococci from both normal feces and saliva were tested in regard to their virulence for mice, but were invariably found to give a negative result. As regards salivary pollution of air the streptococcus found to occur most frequently in circumstances when air is subject to particulate pollution derived from the human mouth is the streptococcus recovered most frequently from saliva. As regards fecal pollution, the streptococcus found most frequently in the feces has been obtained together with the *Bacillus coli* in a broth plate exposed to air contaminated by particulate material derived from people's boots. The investigation as applied to streptococci derived from the human body in disease indicates that considerable diversity exists, though the degree of this diversity has not been fully determined.

Further Observations on Yaws.—In 7 out of 11 cases of parangi, A. CASTELLANI (*Brit. Med. Jour.*, Nov. 18, 1905) found spirochaetes. In the preparations taken from ulcerated lesions various forms are present. One is rather thick and takes up the stain easily. It is morphologically identical with the *Spirochata refringens* of Schaudinn. Another is thin, delicate, with waves varying in size and number, and with blunt extremities. For this variety the name *Spirochata tenuis obtusa* is proposed. A third form is also thin and delicate, but is tapering at both ends. It is termed *Spirochata tenuis acuminata*. In non-ulcerative lesions there may be found a spirochete which is stated to be identical with the *Spirochata pallida*. In several preparations taken from patients presenting spirochaetes and also from patients suffering from parangi in whom the spirochete could

not be found, peculiar bodies were observed. These bodies are generally oval or roundish, 5 to 8 microns in length and 4 to 6 in breadth; sometimes they may have smaller or larger dimensions. In preparations stained by Leishman's method these bodies are stained purplish or bluish and contain chromatin, which may be collected at one point near an extremity or may be scattered. There is no pigment. What these bodies really are and relation they bear to the development stage of spirochaetes cannot yet be said.

GENITO-URINARY AND SKIN DISEASES.

Intravenous Injections in the Treatment of Syphilis.—BARTHÉLEMY and LEVY-BING (*La Syphilis*, October, 1905) states that none of the various salts hitherto employed for intravenous injections in syphilis has been found satisfactory; the cyanide was too toxic in its action, the sublimate coagulated albumin and the others were unreliable in their action or unstable compounds. A mercury salt suitable for intravenous injections should possess the following qualities: it must be completely soluble, it must not coagulate albumin, it must not be too toxic, it must be stable in solution, it must contain a fixed and known quantity of mercury, and it must be capable of being readily sterilized. As a result of careful study, the authors found that the biniodide fulfils all these conditions. It contains 40 per cent. mercury and is easily prepared. They have also employed the cyanide and the sublimate. In their clinical experiments they employed 408 injections in thirty patients. In two they used the oxycyanide, in five the sublimate, in seventeen the sublimate, and in five both the sublimate and the biniodide. All the patients were women suffering with various types of syphilitic lesions. They carefully describe the technic of intravenous injections, which apparently is less difficult than would at first be supposed. Various anatomical situations were chosen. As a rule, however, the veins at the bend of the elbow are best adapted to this small operation. The doses employed were as follows: Oxycyanide, .01 gm.; sublimate, .01 to .02 gm.; biniodide, .1-.02-.03 gm.; dissolved in one c.c. of water. The intravenous injections were invariably painless, but in some cases difficult on account of the veins being concealed in the subcutaneous connective tissue. In a small number of cases unpleasant consequences were noted. Those of a local character were: ecchymoses, subcutaneous edema, the formation of nodosities, periphlebitis, and the formation of scars. The general unpleasant consequences were referable to the toxic action of the mercury, such as salivation, stomatitis and diarrhea. In conclusion, the authors believe that intravenous injections are of service in those cases where it is necessary to obtain a very rapid action, but in which it is necessary to avoid any pain. In other respects the intramuscular injections fulfil all indications and produce the same results.

The Location of Extragenital Chancres.—D. W. MONTGOMERY (*Jour. Cut. Dis.*, August, 1905) gives a brief review of the literature and history of syphilis, recommending that the public be educated instead of being kept in ignorance of the disease. In 1,217 cases which he has seen, 5.5 per cent. acquired the infection extragenitally. The percentage of other observers is given as follows: Krefting (Christiana) reports 15.6 per cent.; Fournier (Paris) 9.0 per cent.; V. Broich (Germany), 9.0 per cent.; Van Walsen (Amsterdam), 8.5 per cent.; Wracek (Vienna), 7.5 per cent.; Bulkley (New York), 5.5 per cent.; and Finger (Vienna), 1.3 per cent. The author states that in Russia from 75 per cent. to 80 per cent. are acquired in this manner,

due to the peculiar customs of the people. As regards sex, all statistics, except those of Neumann and Krefting, give an excess of male infection. Neumann gives 34 males and 48 females, because of the great number of chancres of the lips and of the breast. Krefting gives 61 males and 231 females, for the same reason, viz., infection by wet nurses and kissing, but adds that the disease is also transmitted, among the peasant class, by eating out of the same dish. In 67 cases the following were the locations: lips, 25; tongue, 3; gums, 1; tonsil, 1; corner of mouth, 4; cheek, 1; eye, 1; neck, 1; abdomen, 5; breast, 1; nate's, 1; anus, 3; fingers, 7; wrist, 1; forearm, 2; back of hand, 1. From statistics of other observers 56.4 per cent. were on the lower lip; 43.6 per cent. on the upper.

A System of Venereal Prophylaxis that is Producing Results.—G. SHEARMAN PETERKIN (*Am. Med.*, Aug. 19, 1905) says the education of the individual in the law of sex is the only feasible means, at our present stage of evolution, of lessening or preventing venereal diseases. From sociologic, economic, ethic and physiologic laws, etc., scientific facts are taken as premises, and from these conclusions drawn to prove that this fact must be recognized. With these principles as a working basis, pamphlets—five in number—have been issued by a Committee on Prophylaxis of Venereal Diseases of the Washington State Medical Association. The pamphlets are appended in full, and Dr. Peterkin gives the reason for using them as a means of disseminating such knowledge and for presenting the amount and character of knowledge they contain. The position is taken that business principles of to-day can be ethically applied in leading man, who must and will make his own morality, to the next succeeding evolutionary stage of his morality.

Small Multiple Kerion; An Unusual Type of Tricophytosis. That the ringworm fungus is able to thrive under some circumstances in persons past fifteen years, contrary to the usual opinion, and that the lesions are characteristic, though at times obscured by an associated affection, H. F. WALLIS (*Jour. of Cutan. Diseases*, October, 1905) endeavors to substantiate this by complete clinical histories of ten cases. The author designates the condition as small multiple kerion and gives a résumé as follows: In analyzing the histories of these cases one is first struck by the coincidence that the patients are all girls, ranging in age from eight to seventeen years. In each case pediculosis was present and in nearly every instance the cutaneous eruption was attributed originally to the pediculosis, which was later shown to be erroneous. The clinical appearance presented was similar in each case of the series; the primary folliculitis followed by pustulation, then by rupture and scar formation with temporary alopecia restoration of the hair, the cycle being repeated in several instances. Particularly characteristic was the recurrence of the lesions on the sites of previous lesions. Another feature especially distinctive was the appearance of the black dots at the margins of the lesions, representing the broken-off stumps of the diseased hairs. Microscopical examination, the growth in cultures and the complete recovery without the destruction of the hair follicles, producing permanent baldness, is conspicuous. It is therefore logical to conclude, in view of these histories and observations, that we have here to do with an unusual type of tricophytosis previously neglected and unrecognized by reason of the associated *Pediculosis capitis*. This series of cases also serve to emphasize the necessity of careful microscopical examination in all conditions in which there is scalp involvement.

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THE ARMY "CANTEEN."

Now that Congress is again in session, it is devoutly to be wished, though but little to be expected, that some definite steps may be taken to re-establish the "canteen" in the United States Army. That this is the combined and universal desire of everyone who has had any knowledge of its practical benefits, or experience in the evils that have followed its abolition, there can be no question.

But will the average member of Congress, with the ever-present desire for re-election strong in his patriotic bosom, with the yawning gaps in his political fences—through which the pit-falls to his ambition, like "the eye of God shines through"—dare to vote openly for a measure, that is, from ignorance or intolerance, obnoxious to many of his constituents? Will he listen to those who are in a position to know whereof they speak, even if the voice like that of conscience is small and still, or will he lend his ears to the fanatical clamor of a mass of feminine men and masculine women, whose exponent is of the type of Carrie Nation, and whose emblem of achievement is "a hatchet and the rum shop lying low?"

In the good old days of yore, when conservatism was in flower, and when men were

apprenticed in their youth to a calling, which they followed until they were in turn followed by their mourning families, a life-long familiarity with a subject in all its phases and bearings was supposed to breed an opinion entitled to something more than mere contempt. Even when two of a trade did not agree, both were listened to with respect as representing the expert opinion of authorities, possessed of practical experience. But when all connected with a subject united, a verdict was forthwith rendered, from which the idle vaporings of sentimental theorists found no appeal.

And this to-day is practically the state of the canteen problem. Surely the officers, who lead and control the rank and file, and live and have their being with them, must understand their needs and recognize their failings far better than a band of egotistical reformers who are totally ignorant of the class which they wish to coerce rather than to influence, and whose one idea is not to regulate the supply and quality of the liquor furnished, but to prohibit it altogether.

Tommy Atkins and the boy in blue are very much the same article of war, particularly when they are impregnated with a dash of "Mulvany," as, indeed, are all the units of the fighting machine the world over, and the only way to prevent the modern soldier, with his polyglot admixture of brains, dash and ingenuity from obtaining liquor, is to abolish not only its manufacture, but the production of the things from which it is made. And this would be much more efficacious and fully as easy of achievement.

With the temperance question in the abstract we have nothing to do. It does not indeed enter into this case. We simply take it for granted that as there is liquor to be had, the enlisted man will have it, and the argument is consequently narrowed down to whether it is not better to give it to him in moderation, and of good quality, in his own mess halls, in the company of his comrades, and under the eye of his own non-commissioned officers, than it is to drive him in his hour of rest—his warfare o'er—from the security and restraining influences of the *esprit de corps* of his own post, and force him to seek the low grogeries and the vile companionship that infest the immediate surroundings of all army stations.

That the canteen should be re-established is without doubt, as we have said, the universal opinion of the entire army, as can be seen by the

report of the last Adjutant-General, as well as by the published and expressed views of other officers of the service, which prove that general drunkenness and discontent have increased since its abandonment, and that desertions have also become much more frequent. This consensus of opinion is so general that it is seldom indeed that there is such a unanimity of opinion on a point of, if not of law, at least of order, and this, with the fact that our senators and representatives, in Congress assembled, have been forced to prohibit the sale of liquor in the restaurants in the capitol, and to confine its use to the committee rooms, shows conclusively that it is not enlightenment on the subject that is required by our Solons, but only a little more legislative backbone—a sense of moral responsibility that can look farther ahead than the next local election.

For the evidence of the commissioned officers of the army is overwhelming and convincing. As the reports of the War Department have shown that "all of the generals of the army, except two; all of the ten colonels of cavalry; all of the seven colonels of artillery; all of the forty-nine colonels of infantry, save one, and five hundred and four out of five hundred and sixteen commanding officers of companies, batteries and troops, are for one reason or another opposed to the law abolishing the canteen." Ninety per cent. of those who are in command of posts are of the opinion that the abolition of the army post exchange has increased drunkenness, desertion and court martials, ninety-five per cent. state that the condition of the soldier's health has deteriorated, and *all* agree that morality and discipline have been injuriously affected. All of which has been presented to Congress in a bill (H. R. 16,634) introduced by Mr. Morell, December 15, 1904.

To this is to be added the testimony of the "Woman's Army and Navy League," an association made up of the wives, the sisters and daughters of the officers of both services. Women who have passed their lives in ministering to the wants of the man behind the gun, and who, from practical daily experience, have a deeper insight into the needs of the soldier, a more perfect knowledge of his strength and his weakness, than any mere band of fanatical enthusiasts whose single shibboleth is that "whisky is not good for man." This may be true, but as the supply is inexhaustible, it cuts, as an argument, no more ice than would cool the substituted lemonade. As these ladies submitted a state-

ment to the Committee of Military Affairs in the United States Senate, it cannot be claimed that both branches of Congress have not been informed of the true state of affairs.

That any Congressional relief will be forthcoming, we doubt. The temperance question has become a political issue, and this is a case where they unquestionably will let "I dare not," wait upon "I would." It might be better for all concerned, that the avowal should be made. Better for the politician than to masquerade as an "associate" reformer—and better too for the canteen. For if there is one aphorism in this modern commercial world that is true, it is that you can get a "square deal" more easily from an admitted sinner than you can do business with a confessed saint.

PUBLIC LECTURE ON PNEUMONIA AND MENINGITIS.

ON Friday evening of next week a public lecture will be given at the New York Academy of Medicine on the results of the work of the New York City Commissions appointed to study pneumonia and cerebrospinal meningitis. This lecture is very properly to be delivered by the Commissioner of Health, Dr. Darlington, and there is no doubt that it will attract significant interest.

These two diseases have in the past few years proved serious foes to the city's health and have added very materially to the mortality record. While cerebrospinal meningitis is only an occasional visitor, it works such fearful havoc when it comes as to make the study of the conditions that predispose to it, the causes that lead up to it, and the methods by which it may be prevented some of the most interesting problems of municipal health. Pneumonia, like poverty, is always with us, and unfortunately, like poverty, seems in recent years to be on the increase and counts its victims in ever greater numbers. What was known up to a recent date and what has been recently learned about these two diseases is so important as to be sure to attract attention.

The idea of giving public lectures to which also those who are not members of the medical profession are invited is especially commendable. The New York Academy of Medicine deserves the thanks of the community as well as the medical profession for breaking away from old-time traditions in providing such lectures, and it is to be hoped that no effort will be spared to make

them a success. There is no reason why many persons who are deeply interested in scientific medical problems, but have no means of readily obtaining up-to-date information with regard to them, should not find the opportunities thus provided something that fills a long-felt want. A large number of the general public are sure to be interested in medical problems. Curiosity with regard to matters of public health particularly has hitherto had no adequate means of satisfaction, and the consequence has been that utterly groundless, non-scientific notions have frequently been accepted as true and established.

Most people under present circumstances derive their medical information from the newspapers and from such public announcements with regard to supposed progress in medicine as are made by those pecuniarily interested in having certain forms of information spread abroad. The consequence has been a hopeless state of misinformation on the part of even intelligent people with regard to medical problems. Before his death Virchow used to say that most of the popular notions with regard to medicine were still founded on the old humoral pathology. Certain it is that changes in blood and in bile and in certain other secretions are, at least in popular language, supposed to be the basis of most of the ills to which flesh is heir. Most of the ideas with regard to cellular pathology and the germ theory that have crept into the public consciousness have come from interested advertisers, and the consequences can readily be understood.

The policy of the medical profession in the past has been to some extent opposed to the public expression of progress in medicine or the publication in channels through which it would readily reach the general public of recent information with regard to important medical problems. We are glad that this policy is now recognized as distinctly a thing of the past and that the most important medical body in New York sets the seal of approval upon the opposite policy by having public lectures in its home and under its auspices. The initial lecture of the course could come from no one with better grace than from the city's commissioner of health. The subject is eminently fitting, and Dr. Darlington is sure to make a suggestive presentation of it. We have no doubt that the interest awakened by this first lecture will secure an increased attendance at those which are to follow.

MODERN IDEAS ON THE TREATMENT OF PNEUMONIA.

As a necessary complement to the recent investigations into the etiology of pneumonia, the present conception of the proper treatment of this disease merits careful attention. This fact was emphasized at the discussion on the prophylaxis and treatment of pneumonia, held at the New York Academy of Medicine, Dec. 11, 1905, and participated in by some of the leading clinicians of this city and Philadelphia.

Pneumonia has alarmingly increased during the past decade, until now in some of the large cities its mortality exceeds that from tuberculosis. What is the profession doing to prevent the spread and to combat the onslaughts of this promising rival of the white plague? The importance of recognizing the communicability of pneumonia has already been realized by health boards and is beginning to dawn in the mind of the practitioner.

The result of the recent bacteriological researches furnish data for a more intelligent prophylaxis than has prevailed in the past. James M. Anders ably handled this phase of the subject and referred to the following important predisposing causes of pneumonia, namely: Degenerative conditions of the cardiovascular system, indoor confinement, age, poor ventilation, inappropriate clothing, alcoholism, the "strenuous life," failure of sputum disinfection and nasopharyngeal catarrh. The increased incidence of pneumonia in the months between December and May and the greater vulnerability of the aged, indicate the importance of tonic treatment of the latter during this period. Other essentials in the prophylaxis are an educated public opinion, the control of street cleaning by public health authorities, and the recognition of the fact that pneumococci are found in normal sputum, and that these may gain in virulence by passage through other individuals.

A comparison of the methods of treatment prevailing in four of the largest hospitals of New York, by Henry P. Loomis, reveal a general uniformity of treatment. It is interesting to note the marked difference of attitude in the management of the heart. For systolic weakness, alcohol, digitalis and strychnine are generally relied upon. The use of strychnine is now universal, never being followed by depression, as is alcohol. It is especially indicated when whisky is no longer able to hold the heart, and in pulmonary edema with cyanosis. Digitalis is

rarely used, but in the Presbyterian Hospital it is employed in the form of the tincture in doses of $\text{m} \times$ every four hours. In Roosevelt Hospital one of the routine cardiac stimulants is the use of a saline enema of eight ounces, every four hours. Dr. Loomis has found that in the early stages of the invasion the shock to the nervous system is intense, and that this may be reduced by one or two doses of morphine hypodermically. He believes that the amount of alcohol should be cut down, and that even in intense alcoholic cases the hypodermic use of strychnine is superior to it. The liquor ammonii acetatis may largely replace alcohol. He also points out that patients may be seriously harmed by promiscuous drugging.

Hobart Amory Hare believes that little stress should be laid on the statistics of the mortality of pneumonia in the hospitals. No plan of treatment is suitable for all cases. In the face of an overwhelming toxemia no treatment is of any avail. The average case of pneumonia requires aid at the critical period, and most cases get better in spite of treatment. Alkaline diuretics and hepatic stimulants are important aids in combating the toxemia. The physician should remain the passive spectator and should give drugs only when necessary. Digitalis does much less for the failing heart in pneumonia than in valvular disease. It is not very efficient in over-fatigue and toxemia of the heart muscle. Only a physiologically tested sample of the drug should be used. The employment of the circulatory depressants in the early stages of pneumonia is rarely necessary. The precordial ice-bag and the use of Dover's powder serve the indication much better and with less danger. In the later stages of the disease, in order to overcome the reduction in the vascular tone, atropine is exceedingly valuable. Many cases of death are really a vascular death, the patient bleeding to death into his own blood-vessels, owing to the lack of the *vis à frontis*. Expectorants are mostly useless in pneumonia.

J. Madison Taylor believes that the early use of saline solution increases the patient's chances. A convenient method of employing the saline therapy is to administer lemonade containing ten grains of sodium chloride to the glass.

That a single pneumococcus lodged on the wall of a pulmonary alveolus is capable of causing by its irritating effect the incidence of pneumonia was the view advanced by Dr. Andrew H.

Smith. The importance of catching cold as an etiological factor in pneumonia was dwelt upon, together with the reflex vasomotor mechanism involved in this process. A true prophylaxis should take account of this nervous element in the production of pneumonia, and the treatment must remain symptomatic until the true antidote is discovered.

The keynote of the entire discussion in which other able observers took part was that excessive and routine drugging is to be avoided, that each case of pneumonia requires vigorous stimulation when the occasion arrives, and that expectorants are rarely necessary.

ECHOES AND NEWS.

NEW YORK.

Staten Island and the New Tuberculosis Hospital.—The Municipal Art Commission has approved the plan for a two million dollar tuberculosis sanitarium on Staten Island. The work of carrying out the plans can now proceed in the regular manner, as provided in the charter. The people of Staten Island, it is reported, are determined to perform the foolish trick of trying to fight the erection of a tuberculosis hospital in Richmond Borough, and the Staten Island Chamber of Commerce has appointed a committee of seven to wait upon the Mayor in Manhattan and protest against the plan. The hospital is to be located near New Springville.

Medical Examiner for Department of Finance.—The Civil Service Commission, on recommendation of Comptroller Grout, last week created the position of medical examiner for the Department of Finance at a salary of \$2,500. This, it is believed, will be the means of saving the city many thousands of dollars in damage suits. Mr. Grout two weeks ago asked to have the position created, and the suggestion met with the approval of the Commission. Heretofore when a person was injured on property belonging to the city, a policeman was detailed to inquire into the nature of the injuries, and the report he made was always accepted. In many instances persons pretended to be more seriously injured than they really were, and consequently suits for damages against the city were frequently "faked." With an official medical examiner this will be done away with.

Hospital Gift.—William I. Spiegelberg, president of Sydenham Hospital, at 339 East One Hundred and Sixteenth Street, showed last week the proof sheets of the forthcoming annual report of the hospital to Isaac Guggenheim, of 763 Fifth Avenue, who has helped the institution a great deal in the past. Mr. Guggenheim, so Mr. Spiegelberg made known later, was so impressed with the report that he offered \$250,000 toward the erection of a new building, provided the hospital authorities, within a reasonable time, raise an endowment. Mr. Spiegelberg has no doubt that the endowment can be secured. As the Harlem Hospital will move to another section within a few years, it is thought, the usefulness of Sydenham will increase very rapidly on the upper east side. The hospital was established

two years ago with six beds. It now has 86 beds, 70 of which are free. Sixty-two beds were occupied last night. The Sydenham is a public institution. The city gave it an appropriation of \$12,500 last week. Last week the firm of M. Guggenheim & Sons gave \$5,000 to the hospital as a memorial to the late M. Guggenheim, whose son Isaac is. Mrs. Isaac Guggenheim established a maternity in connection with the hospital some time ago. Dr. Robert Kunitzer, second vice-president of the hospital, said that the condition of the gift was that Mr. Guggenheim would double the amount of every initiation fee received from new members. The life member's fee is \$100. Dr. Kunitzer said that it might take two years to get enough members to secure the \$250,000. The money will be forthcoming as soon as members are secured. Mr. Guggenheim gave \$20,000 on Saturday for current expenses.

PHILADELPHIA.

Medical Club Entertained Eminent German.—Dr. Carl von Noorden, of Frankfurt-a.-M., Germany, was entertained by the Medical Club of Philadelphia, Wednesday, December 20, 1905. The club has a membership of 700, and most of the prominent members were present. The toasts flowed almost as freely as some other substances found there.

Section on General Medicine of the College of Physicians of Philadelphia.—This section met on December 11, 1905. The scientific program was opened by Dr. F. J. Kalteyer, who exhibited a patient presenting certain "unusual features of Angina pectoris." Dr. W. E. Hughes read a paper entitled "The Clinical Significance of Precordial Pain. Dr. D. L. Edsall read a paper on "Clinical Observation on the Effects of X-rays in Clinical Medical Diseases." Dr. J. A. Scott read a paper on "A Clinical Report of Cases of Typhoid Fever with Suppurating Complications, with Especial Reference to the Changes in the Blood." Dr. J. M. Swan reported "A Case of Paratyphoid Fever."

Cocaine Dispensers Arraigned.—Several individuals, alleged sellers of cocaine, and also several druggists and their clerks, have been brought before magistrates for a hearing. The police have discovered several dens where the drug could be obtained. The habitués in many instances needed only go to certain drug stores in the sections of the city, give certain phrases or words and lay down the money to obtain the cocaine. After the police made a raid several weeks ago these shops ceased to sell the drugs and the habitués were nearly driven to desperate straits for want of the medicine, but they soon heard of similar shops in Camden, where they went to relieve their sufferings.

The Philadelphia County Medical Society.—The meeting of this society was held on December 13, 1905, when a symposium on disorders of the circulatory apparatus was given. Dr. Alfred Stengel read a paper on "Arteriosclerosis as a General Disease." Dr. Wm. H. Welch, of Johns Hopkins University, Baltimore, gave a talk on "The Relations Between Cardiac and the Renal Disease and Arteriosclerosis." Dr. Judson Daland read a paper on "Myocarditis and Degeneration of the Myocardium Independent of Arteriosclerosis." Dr. H. A. Hare read a paper on "Remarks on the Cardiovascular Disease, with Reference to Treatment." The discussion was opened by Dr. J. C. Wilson and continued by Dr. G. E. de Schweinitz, Dr. W. B. Stan-

ton, Dr. John H. Musser, Dr. S. Solis Cohen and Dr. A. O. J. Kelly.

The Pathological Society of Philadelphia.—The meeting of this society was held December 14, 1905. Dr. Allen J. Smith showed card specimens illustrating retrograde changes in myomatous uteri. Dr. Steven E. Tracy showed specimen of ectopic pregnancy with bilateral suppurating salpingitis and cystic adenomyoma of the uterus. Dr. P. B. Bland showed a desmoid tumor of the anterior abdominal wall; chorio-epithelioma; extensive cystic disease of the uterine cervix; fibromyomata of the uterus in gross serial sections. Dr. C. Y. White showed cystic tubes and ovaries from a bison. Dr. W. M. L. Coplin showed a new method for card indexing microscope slides. Dr. M. P. Ravenel and Mr. J. Reichel, by invitation, read a paper on "Negri Bodies in Rabies." Dr. Alfred Gordon read a paper on "Mast Cells in Rabies." Dr. E. S. Allen and, by invitation, Mr. C. C. Corson read a paper on "The Transformation of Uterine Myomata into Fibromata." Dr. Brooke M. Anspach read a paper on "A Study of Elasticity in Parous and Non-Parous Uteri." Dr. Samuel Leopold read a paper on Primary Genito-urinary Tuberculosis."

CHICAGO.

Appointment of Civil Service Board.—Drs. Hugh T. Patrick, Frank Billings, John B. Murphy, Harold N. Moyer and Frank P. Norbury have been selected by the Civil Service Commission as a board to prepare the questions and grade the papers in examinations for assistant physicians in the State hospitals for the insane.

Military Surgeons at Clinic.—The surgeons of the Illinois National Guard were given instruction at Rush Medical College recently in field surgery by Surgeon-General Nicholas Senn, Dr. F. S. Stanton, Major Charles Adams, Lieutenant W. Howard and Dr. D. W. Graham. Dr. Senn entertained the surgeons at a banquet later.

Suit Against State Board of Health.—A suit against the Illinois State Board of Health in the Circuit Court of Cook County has been begun by E. M. Harrison, who holds a diploma which was issued in 1903 by the now defunct Dunham Medical College. The litigation in this case is to compel the board to issue him a certificate without examination. The action is based on Section 2 of the Medical Practice Act, which provides that the board may issue certificates to graduates of Illinois medical colleges in good standing without examination.

Ottawa Tent Colony.—The new \$15,000 structure of the Ottawa Tent Colony, an experiment in the outdoor treatment of tuberculosis started a year ago under the auspices of the Illinois State Medical Society, was dedicated December 12. Nearly five hundred physicians and persons interested in the cure of the disease were present from Chicago and the principal towns of the State. The principal address was delivered by Dr. Frank Billings, Chicago. Dr. Harold N. Moyer acted as chairman. Speeches were also made by Dr. J. W. Pettit and by Dr. George A. Zellar, superintendent of the Hospital for Insane at Peoria.

Illinois Training School for Nurses.—This school has rounded out twenty-five years of existence as a corporate body. Many of the charter members are still on the Board of Directors. From among its graduates nine are superintendents of other training institutes in Chicago. The school was the first

to install the three-year course and also to affiliate with smaller schools, that their graduates might attain the standard demanded for prospective State registration. During the last year the largest number of nurses in the school was 156 in November; the smallest, 138 in August. December, 1904, there were 12 graduates and 121 pupils; last month, 22 and 118, respectively.

To Abate Smoke Nuisance.—Health Commissioner Whalen favors an amendment to the smoke and boiler inspection ordinance to permit the Health Department to sue smoke violators. The proposed amendment was recently voted down, but Dr. Whalen will try to have it placed in the amended ordinance to be submitted to the entire judiciary committee. He has forty-five sanitary inspectors, who could note violations of the smoke ordinance in their regular round of duties. The present smoke bureau has only four inspectors. This small force cannot hope to note all violations, and the Commissioner's plan is to use the forty-five inspectors for this work and to allow the Health Department to bring suits against violators.

GENERAL.

State of New Jersey Board of Medical Examiners.—Dr. William H. Shipp has been elected acting secretary of the State Board of Medical Examiners of New Jersey, vice Dr. E. L. B. Godfrey, secretary, granted leave of absence until May, 1906. All communications should be addressed during this period to Dr. William H. Shipp, Bordentown, N. J.

Sanitary Committee.—President Roosevelt last week issued an executive order appointing a committee, consisting of Surgeon-General Robert M. O'Reilly of the army; Surgeon-General P. M. Rixey of the navy, and Surgeon-General Walter Wyman of the Public Health and Marine Hospital Service, to inquire into the sanitary conditions in Government offices and workshops, with a view to preventing the spread of tuberculosis.

American Association for the Advancement of Science: Section K, Physiology and Experimental Medicine.—The sessions of Section K of the American Association for the Advancement of Science, which will be held on the morning and afternoon of January 1, promise to be of unusual interest. The morning session will be opened by an address by the vice-president, Dr. William T. Sedgwick, on "The Experimental Method in Sanitary Science and Sanitary Practice." The remainder of the morning session and all of the afternoon will be devoted to a symposium on "yellow fever and other insect-borne diseases." Yellow fever in its various phases will be discussed by Drs. J. H. White, Quitman Kohnke, James Carroll and H. A. Veazie. It is expected that Drs. Edmund Souchon, Surgeon-General Walter Wyman and Col. W. C. Gorgas and other specialists will also take part in the discussion. Dr. William S. Thayer will read a paper on "The Problem of Prophylaxis Against Malaria in the United States." Dr. Henry B. Ward will consider filariasis and trypanosome diseases, Dr. Charles W. Stiles will present a résumé of facts bearing on the principles involved in the transmission of disease by insects, and Dr. Gary N. Calkins will discuss the protozoan life cycle. Dr. L. O. Howard will talk on mosquitoes that carry disease and Mr. Henry Clay Weeks, Secretary of the American Mosquito Extermination Society, will present the practical side of mosquito extermination.

Annual Meeting of Southern Medical College Association.—This association held its annual meeting December 11 at the Seelbach Hotel, Louisville, Ky., under the presidency of Dr. Christopher Tompkins, of Richmond, Va. More stringent rules applying to the admission of students were adopted. Ten of the fourteen colleges of the association were represented. President Tompkins read an address on "The Advancement in Preliminary Educational Requirements." The suggestions set forth in the address, after considerable discussion, were resolved in a motion which was unanimously passed. The motion provided that from the present time until January, 1908, an applicant for admission to any college of the association must have had two years in a recognized high school, or a certificate from an acknowledged preparatory school, besides a grammar school education. After January 1, 1908, the nine requirements for admission will be a high school diploma, or a certificate of graduation from a recognized preparatory school, and the courses at the college shall be for four years of seven months each instead of six months, as is the case with some schools at the present time. Since the last meeting five colleges not in the association have either filed applications for membership or will do so within a short time. Two of the colleges which have filed applications are the Medical Department of Epworth University, Oklahoma City, Okla., and the Medical Department of the Southwestern University, Dallas, Tex. The other three colleges are in Georgia and Maryland. The following officers were elected for the ensuing year: President, Dr. Christopher Tompkins, Richmond, Va., re-elected; Vice-President, Dr. T. H. Fraser, Mobile, Ala.; Secretary and Treasurer, Dr. G. C. Savage, Nashville, Tenn., re-elected. Executive Committee, Dr. J. S. Kane, Nashville, Tenn.; Dr. W. B. Rogers, Memphis, Tenn., and Dr. Stuart McGuire, Richmond, Va. The next meeting of the association will be held at the same time and place (Baltimore), as of the Southern Surgical and Gynecological Association. The Southern Medical College Association was organized in Louisville, November 16, 1892, for the purpose of establishing a preliminary educational requirement among the medical colleges throughout the South, and for increasing this requirement from time to time. The work being done at present by the Northern and Southern medical college associations, together with the Educational Committee of the American Medical Association, is in the direction of procuring uniformity in State medical laws and reciprocity in State Boards, all of which probably will be accomplished within the next decade.

OBITUARY.

Dr. JAMES ELLIOTT, of Newark, N. J., for fifty-six years a practising physician at that place, died last week at his home, 56 New Street, aged eighty-eight years.

Dr. ELWIN REYNOLDS died at his home, 129 Lafayette Avenue, Brooklyn, last week. He was born in Warwick, N. Y., fifty-nine years ago. He was one of fourteen children of Dr. Abram Lockwood Reynolds, an Orange County physician. For twenty-two years he was chairman of the medical staff of the Brooklyn Home for Consumptives. He was a member of the American Medical Association, the New York State and the Kings County Medical Societies, and the Medicolegal Society.

Dr. THEODORE DREECKE, pathologist, chemist and also a writer on medical subjects, more particularly those relating to the brain, died at his home in Utica, last week, after three years' illness. He was sixty-nine years old. For seventeen years he was pathologist at the

Utica State Hospital, during which time he brought his department up to a high state of efficiency. From time to time he had figured prominently as an expert witness in criminal trials in different parts of the country.

Dr. EZRA HERBERT WILSON, a well-known bacteriologist, died last Tuesday in his forty-eighth year at his home Williamsburg, N. Y. He was born in Port Jefferson, L. I., and was graduated from the College of Physicians and Surgeons in 1882. He became connected with the Hoagland Laboratory as associate to Surgeon-General Sternberg of the United States Government, and later succeeded him as director of that institution. For four years he was connected with the old Brooklyn Department of Health, and as a surgeon of the old city of Brooklyn he manufactured all the antitoxin that was used.

Dr. MORTON GRINNELL died last week at his home at Beaver Brook Farm, Milford, Conn., in his fifty-first year. He was born in New York and was the son of G. B. Grinnell, who was a merchant and banker. Dr. Grinnell was graduated from Yale in 1875 and four years later from the Bellevue Hospital Medical School. He studied medicine in Europe for a year or more and then settled down in this city to practice. Fifteen years ago he retired and went to Milford to live. After his retirement he wrote a couple of books on nature subjects. One of them was called "Neighbors of Field, Wood and Stream." He suffered an attack of pneumonia some weeks ago and this left his heart very weak.

Dr. NATHAN BOZEMAN, a surgeon well known in this country and in Europe, died last Saturday morning at his residence, 162 East Seventy-first Street, New York, after a week's illness following a stroke of apoplexy. He was in his eighty-first year. Dr. Bozeman was born in Butler County, Alabama, and was educated in the University of Louisville. He first practiced in Montgomery, Ala., achieved a reputation as a surgeon, and became known as a writer on gynecology. Later he was called upon to treat cases in London, Edinburgh, Glasgow, Dublin and Paris. For several years he owned a private hospital in New Orleans. Dr. Bozeman was in the Confederate service as a member of the Examining Board of Army Surgeons.

While dressing last Sunday morning Dr. WM. SMITH FORBES, of Philadelphia, was seized with an attack of heart failure, from the effects of which he soon died. He had been complaining for some time, but after his lecture the preceding Monday he was seized with symptoms referable to the heart; some little time afterward he had another and a third on Friday, from each of these he rallied, but finally succumbed to the attack on Sunday morning. Dr. Forbes held the chair of anatomy at the Jefferson Medical College since 1886. He graduated from the above-named college in 1852, and was also an alumnus of the University of Pennsylvania. He served as resident in the Pennsylvania from 1853 to 1854; Dr. Forbes served with the British in the Crimean War, after which he was offered a directorship in the British army, but refused the offer, not desiring to renounce his allegiance to the United States. After his return from the Crimean War he established a private school of anatomy in this city, this he conducted until the outbreak of the Civil War. In 1879 he was made demonstrator of anatomy in the Jefferson Medical College. In 1863 he drew up the anatomical act of Pennsylvania and amended it in 1883. At the graduation exercises of the Jefferson Medical College last June the student body presented the college with the portrait of Dr. Forbes and the alumni of the university presented him with a loving cup.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, December 7.

PARLIAMENT AND THE MEDICAL PROFESSION—THE TREATMENT OF TUBERCULOUS CHILDREN—BARBERS AND SURGEONS—ALLEGED OPERATION ON THE KAISER.

THE change of Government will have as a consequence a general election. The Liberal party which is now in power has never shown much sympathy with the problems of public health. Sir Henry Acland, Burdon-Sanderson's predecessor at Oxford, who was an intimate friend of Gladstone, often tried to interest him in sanitary questions, but without the least success. The Liberal party is largely made up of men to whom the *arbitrium popularis avara* is the sole standard of right and wrong in politics. In its heterogeneous constitution, too, it includes faddists of all kinds who look upon the medical profession and the scientific movement with suspicion. The consequence is that practically all legislation for sanitary advance has come from the Conservatives. But, in truth, neither party really cares for anything that concerns medicine, for the simple reason that doctors as a class count for little or nothing in politics. They are not united or organized and hence cannot as a body influence votes. The British Medical Association is making an effort to secure a larger Parliamentary representation for the profession, but it is to be feared that it will accomplish little or nothing. Its membership includes only about one-half of the profession, and it is hardly likely to find any men of sufficient standing within its fold who would consent to be the delegates of what is practically a small caucus. Outsiders would, of course, resent dictation from a body which at present is animated solely by motives that can only be called parochial. Even if the association were to find candidates it would still have to find constituencies, and the British electorate which boasts itself free and independent would certainly not accept as a Parliamentary representative a man who was a doctor first and a politician only by second intention. The political impotence of the profession is illustrated by the fate of a Medical Committee which was formed among the doctors in the House two or three years ago. They met, I believe, only once; at any rate the committee was virtually stillborn. It was found, as might have been anticipated, that the men would not work together, and it must be said that none of them showed any living interest in the existence of the committee. There are some two and twenty candidates for the suffrages of the voters at the coming election, but with very few exceptions they are men of no particular professional standing or have won such fame as is their portion in other fields than politics. Thus there is Sir Arthur Conan Doyle, the creator of Sherlock Holmes, who has long ceased to take an active interest in medicine; there is Sir George Scott Robertson, who won distinction in India as a diplomatist and administrator, and there is Dr. Rutherford Harris, best known as Secretary to Cecil Rhodes. Among the others are Sir Walter Foster, well known formerly as a physician, but now wholly given up to politics. The only man whom the whole profession would acknowledge as a worthy representative of medical science is Sir Michael Foster, the eminent physiologist. I doubt, however, whether he would like to be regarded as a champion of the medical profession. He stands for pure science, striking the stars with his

lofty head and looking at the difficulties of the struggling mass of practitioners with detachment, if not with complete indifference. Among the candidates is Dr. E. M. Crookshank, sometime professor of bacteriology at King's College, but best known as one of the great twin brethren of medicine (the other being Dr. Charles Creighton), whom the antivaccinists claim as their own. Sir John Tuke as a distinguished expert in mental diseases would find a useful sphere of activity in the House of Commons if he were to use his scientific knowledge for the treatment of that excitable body. As a representative of medicine, however, he has not proved very effective. His intentions are excellent, but his oratory does not impress the House. Of the rest there is nothing to say at present; possibly they may number among them some mute inglorious Bright or Gladstone, but they have not revealed themselves. How many of them will find seats it is impossible even to conjecture. Probably all but half a dozen or so will be left outside the gate, to gaze, like the Peri, at the paradise within. There are several questions of importance to the profession to be dealt with; but as Mr. Balfour, with his enormous majority has done little or nothing in regard to such matters, it is pretty safe to prophesy that the new Government will not be able, even if it be willing, to do more.

At a meeting of the Council of the Invalid Children's Aid Association held the other day, Sir William Broadbent pointed out that, while consumption had diminished year by year for the last thirty years, there had been no corresponding diminution in the death rate of the tuberculous affections specially incident to infancy and early childhood—meningitis, peritonitis, tabes mesenterica, disease of spine, bones and joints, and scrofulous glands. On the contrary, these had increased. He had endeavored to obtain some idea of the number and distribution of the children suffering from tuberculosis in London. During the years 1901-3, 6,391 children under five died from different forms of tuberculosis, of these 2,894 died before they were a year old, the mortality decreasing rapidly with every successive year of life. Tuberculous meningitis appeared to be at every age the most fatal form of the disease, carrying off 861 children in the first year of life, 742 in the second, 391 in the third, 303 in the fourth, and 184 in the fifth. Next to it in the first year of life came tabes mesenterica, with a death roll of 694, and tuberculous peritonitis with 414, dropping respectively to 170 and 176 in the second year and 46 and 72 in the third. Pulmonary tuberculosis was said to be responsible for 237 deaths under one year and 234 under two years, becoming after that age the most fatal form of tuberculosis, with the exception of meningitis. Tuberculous disease of the glands, bones and joints are classed under one heading, and accounted for 688 deaths in the first year of life, 429 in the second, 161 in the third, dropping to 113 in the fourth and 85 in the fifth. On public grounds, said Broadbent, those deaths were scarcely to be regretted. If a child contracted tuberculosis at an early age it was probably susceptible, or the unhealthy influences surrounding it were strong, and for its own sake death was preferable to a life of suffering; in the interest of the community and of the race the elimination of a burden and source of weakness was desirable. The association could do little or nothing for cases of true pulmonary consumption which came under its cognizance beyond sending early cases into the country. After pointing out how far France was ahead of England in the matter of provision for tuberculous children, Broadbent

said that in England an excellent beginning had been made in a home on the south coast which was under the control of the Metropolitan Asylums Board and had been open for nineteen months. The results so far appeared to be astonishingly good. Tuberculous disease of the spine, bones, and joints, and of glands, constituted a large proportion of the cases taken charge of by the association. There were 1,476 deaths in that class. During the last five years 1,736 cases of surgical tuberculosis had been placed on the books, and out of 1,209 new cases referred to it last year 502 were those of children suffering from different forms of surgical tuberculosis, including 89 of glands, while 68 were said to be phthisical. He went on to say that it was by amelioration of surroundings that prevention might be favored and that suffering might be alleviated, but recovery must be sought by removal from the influences which had brought on the disease. Primarily it was the duty of municipalities to see that the housing of the poor were not, from imperfect water supply, sanitary arrangements, negation of sun and air, direct causes of disease. In not one of those particulars did the housing of the poor comply with the requirements of health and decency. In regard to overcrowding, which was one of the chief causes, both direct and indirect, of tuberculosis, the responsibility was divided between the municipal authorities and the occupants. There were regulations as to floor space and cubic feet of air to each inhabitant, but in some parishes these were not enforced. The tenants of tenements on their part, especially in bad times or cold weather, constantly tried to evade the regulations. A terrible difficulty arose in the case of large families. The greatest safeguard against tuberculosis in early life and against infantile mortality generally was that the child should be suckled by the mother. There was no substitute for that within the reach of the poor. The bottle was, perhaps fortunately, when the breast milk was not available, the best means of keeping an infant quiet, and to warm milk cost less trouble than the preparation of other forms of nourishment; but the milk was usually of indifferent quality, the bottle was not properly cleansed, and was often furnished with an india rubber tube which was never sweet and was infested with microbes. The so-called comforter, a teat constantly seen in the mouths of infants of all classes, was an invention of the devil; was a fraud on the unhappy child, led to waste of its digestive secretions, and picked up every kind of filth when it fell on the floor. If there was consumption in the house it was the readiest and easiest of all ways of conveying the tubercle bacilli to the child. Turning to what was being done for the victims of tuberculous affections of the spine, or the hip and other joints, and of bones, he said the Alexandra Hospital for Hip Disease had 65 beds in London, 20 at Clandon, in Surrey, 12 at a convalescent home at Painswick. Only acute and early cases were admitted, though once in the hospital they were kept there indefinitely. The number received, therefore, was small—only 173 children were under treatment in 1904—but the results were excellent. Next came the Children's Hospital for the treatment of hip diseases at Sevenoaks, with 36 beds; and there, again, only early cases were admitted, which, however, were kept as long as necessary. At Cheyne Hospital the more advanced cases, both of hip and spinal disease, were admitted and kept indefinitely. Finally, at all the general and children's hospitals in London those cases were treated as out-patients and admitted when necessary for operation. At the seaside they had the Victoria Home, at Margate, for cases with open

wounds, where the children were kept as long as there was hope of improvement, the Royal Sea-Bathing Hospital and some small nursing homes which could only accommodate a few children. There was also a home at Herne Bay for convalescent cases under the Metropolitan Asylums Board, and in London the Poor-law infirmaries admitted the advanced cases and kept them as long as necessary. There was no special provision for spinal disease, and it was seldom possible to obtain admission anywhere for an incipient case, whether of spinal or joint disease, without a long wait, which often compromised the chance of recovery and resulted in deformity, which might have been prevented.

An interesting ceremony, reminiscent of the fraternity which existed for centuries between surgeons and barbers, took place on December 5 in the hall of the Ancient Guild of Barbers in the City of London. At a Court of Assistants then held, Mr. John Tweedy, President of the Royal College of Surgeons of England, was admitted to the freedom and livery of the company. The list of Masters of the London Guild of Barber-Surgeons from the year 1308 is still extant. When the union between the crafts was dissolved by Act of Parliament in 1745, the Barbers' Company retained possession of the old hall, together with the corporate property, plate, pictures and records, while the surgeons were made a separate company. About the end of the eighteenth century this body inadvertently committed hara-kiri by a violation of its constitution. In a year or two it rose from its ashes as a college, and thus the last link connecting surgery with trade was broken. The Barbers' Hall is an interesting place in itself. It was built by Inigo Jones in 1636, and by good fortune escaped the great fire of London in 1706. Its walls are adorned with historic pictures of Vandyke, Sir Peter Lely, Sir Joshua Reynolds and Gainsborough, but the barbers' chief artistic treasure is Holbein's famous picture of Henry VIII. giving a charter to the barber-surgeons. The figures are mostly portraits of the leading physicians and surgeons of that day. The company has also some very choice old plate, notably the Tudor Grace Cup and Cover (plate mark, 1519), presented by Henry VIII.; the Royal Oak Cup, presented by Charles II. in commemoration of his escape at Boscobel, and a large silver punch bowl given by Queen Anne. The admission of the President of the College of Surgeons was made the occasion of a "city feast." In responding to the toast of "The Junior Livery Man" Mr. Tweedy spoke with pride and pleasure of his association with the guild and the hall which had once been the home of so many of his illustrious predecessors.

Rumors have been flying about the press to the effect that a prominent London specialist in ear diseases has recently been summoned to Berlin in order to operate on the Kaiser, whose left ear has been giving him trouble. It is said that the Emperor, who has been partially deaf throughout his life, caught a bad cold, which was followed by neuralgic pains and suppuration. The German doctors having failed to give relief, and English surgeon was called in. This is the statement which I have myself seen in several English provincial and one or two London newspapers, and in some continental papers, such as the *Journal des Débats* and the *Heraldo de Madrid*. As the Kaiser opened the Reichstag in person after the date of the alleged operation and has since been as copious and vigorous in speech as usual, it is obvious that he could not have undergone any serious operative procedure. There appears, however, to be some mystery in the matter, for one hears that Mr. C. A. Ballance, of St.

Thomas' Hospital, who has gained some reputation here in connection with the mastoid operation, recently paid a visit to Germany and has come back bringing with him the spoils of the conqueror in the shape of a minor decoration of some kind. Some time ago he did, it is said, perform the mastoid operation successfully on a German princess and this may be the reason of the decoration. It is, to say the least, improbable that Mr. Ballance should have been called in to operate on the Emperor. Many of us remember the indignation caused in the Teutonic world when Morell MacKenzie was called to the Emperor Frederick. Our relations with Germany have not become friendlier since then, and if the Kaiser, who is before all things a German, had given himself into the hands of an English doctor, such an illustration of free trade would have been almost enough to cause a rebellion. Besides, in this instance, he would have gone out of his way to inflict a wanton insult on the medical profession of his own country, as there are several men in Germany who are leading authorities on the surgery of the ear.

SOCIETY PROCEEDINGS.

NEW YORK OBSTETRICAL SOCIETY.

Regular Meeting, held October 10, 1905.

The President, J. Riddle Goffe, M.D., in the Chair.

Fibroid in the Posterior Wall.—Dr. J. N. West presented a uterus with tubes and ovaries, showing a large fibroid in the posterior wall. Both tubes were distended with pus and there was an abscess in one ovary. There was also a papillary carcinoma growing from the endometrium over the region of the fibroid. The specimens were removed from a patient fifty-two years of age, who had been bleeding irregularly and whose abdomen had been increasing rapidly in size.

Fibroma of the Ovary.—Dr. G. H. Mallett presented a fibroma of the ovary he had removed from a patient forty-eight years of age, who had noted a slow increase in the size of the abdomen for seven years. The menstruation had been rather profuse for four years, making the diagnosis of a pedunculated uterine fibroid probable before the operation revealed its true nature.

In the discussion Dr. H. J. Boldt stated that he did not consider atypical bleeding in fibroids to be diagnostic of malignant growth, but that rapidity of growth was sufficient reason for making a probable diagnosis of degenerative changes. He thought in Dr. West's case the malignant growth was an independent process simply coexisting with the fibroid.

Dr. G. T. Harrison thought Dr. West had considered a rapid growth after the menopause in a tumor that had been quiescent, and the atypical bleeding under such circumstances were suggestive of malignancy. He considered these tumors normally to undergo retrograde metamorphosis at the time of the menopause and, if they did not, some complication was present.

Dr. A. F. Currier suggested that Dr. West's case pointed to the possibility that such degenerative changes were more apt to occur in submucous than in subperitoneal fibroids.

Dr. Mallett spoke of the possibility of confusing with pregnancy cases of fibroids in which the uterus was filled with a growth, as in Dr. West's case. He had seen two cases in which the diagnosis was

still uncertain even after the abdomen had been opened.

Dr. A. Brothers stated he had not found ascites present in three ovarian fibroids he had seen in the past few years and does not consider its presence a valuable diagnostic sign. He cited a tumor of this kind with a twisted pedicle that had simulated a movable kidney.

Uterine Myofibromata and Visceral Degenerations.

—Under this title Dr. H. J. Boldt read the paper of the evening. Forty-seven per cent. of his cases in private practice of myofibromata had some circulatory disturbance. *Class 1.*—Five patients had dyspnea on exertion, also a small rapid pulse with arrhythmia. There was moderate hypertrophy of the right ventricle. The urine showed albumin and casts on one occasion. *Class 2.*—One patient with orthopnea and irregular and intermittent pulse; increase of dullness over the entire cardiac area; hepatic dullness slightly increased; albumin and casts in the urine. *Class 3.*—One patient had an arrhythmic, hard pulse, with occasional attacks of angina pectoris. In the urine there was a trace of albumin and some granular and hyaline casts. *Class 4.*—Nine patients had a rapid pulse, from 100 to 128 beats a minute, which on sudden exertion increased from 10 to 20 beats; the pulse was small and easily compressible. All the patients were easily fatigued on exertion. The urine was normal. *Class 5.*—Twenty-one patients complained of no symptoms referable to the heart, but the pulse was small, of low tension, occasionally irregular, from 86 to 110 beats a minute. Pain on pressure over the second sterno-intercostal space was noted five times, associated with pain on pressure over the apex four times. Pain on pressure with the point of a finger over the apex alone was observed nine times. There was a trace of albumin in the urine three times, associated with occasional hyaline and granular casts twice. There was no appreciable change in the heart area in any of these cases. Of thirty-four of these cases in which cardiac changes had been diagnosed, five died after operation. Of the patients operated upon five did not have bleeding as an indication for operating.

A careful review of the literature showed a relation between these tumors and degenerative changes in the heart and other circulatory changes that is sufficiently accepted by competent observers to cause us to consider these tumors dangerous to life from other than degenerative changes in the tumors themselves. In all instances of death following his operations during the past twenty years in which an autopsy was permitted, some degenerative change was always found in the heart muscles whether the diagnosis of a cardiac lesion had or had not been made before the operation and whether or not the neoplasm had given rise to metrorrhagia or menorrhagia. While the size of the tumor, he says, does not bear any positive relation to the degenerative changes in the heart muscle, it must be admitted that such changes are more likely to be present if the tumors are of large size, and especially if hemorrhage has been a prominent symptom. His practical deductions are that especial care in regard to hygiene and diet is necessary in patients who have these tumors, and that cardiac and renal changes, unless hopelessly advanced, are rather indications than contradictions for their removal.

Dr. Le Roy Broun also read a paper upon this subject, in which he first referred to three cases

of Wilson, of Birmingham, without hemorrhages, but with marked signs of cardiac disturbance. In two of these cases of which subsequent records were obtained, marked improvement followed the removal of the tumors. He also related the history of a case of Dr. Ewing, of Nashville, that had been under observation for years without the presence of any physical signs referable to the heart before the development of the uterine fibroid. Seven years after the presence and growth of the tumor had been noted without hemorrhages, heart symptoms developed from which the patient suddenly died. He pointed out a special class of cases in which myocardial changes develop without physical signs of their presence until shortly after the operation shock appears that is out of proportion to the length of the operation or to the amount of hemorrhage. He referred also to Flick's "myoma heart" as being a condition well recognized by continental anesthetists. In New York two anesthetists who use ether told him they had not observed such a condition. Denton, however, he says, told him that his experience leads him to expect severer shock in the removal of uterine fibroids than in any operations of like severity or duration, unless it is for stone in the common duct.

The author gave the statistics of Hofmeyer, in which of 18 cases of sudden death in patients with uterine fibroids, 15 showed brown atrophy of the heart muscles; also Flick's 12 deaths, in 9 of which the heart muscle showed brown atrophy, and in 3 fatty degeneration.

Dr. Baché Emmet, in opening the discussion, said that while many conditions may be present that are often unrecognized through haste or neglect, the study of certain points may magnify their importance. The amplification of these important pathological facts might show the interdependence of the tumors and the heart lesions, but that he thought the experience of those present did not show such a large variety of diseases of the heart and kidneys as the author of the paper would lead one to believe. Long continuance of pain, loss of blood, pressure upon vessels, however, would cause changes in the heart and kidneys, particularly the latter. The modern tendency to early removal he considered especially wise if a coexisting lesion is found.

Dr. H. C. Coe cited a case of sudden death prior to an anticipated operation for the removal of an enormous fibroid. The autopsy showed a dilated right kidney filled with blood. He also recalled two or three deaths from thrombosis. He also thinks the frequency of heart lesions has been exaggerated. The size of tumor and the length of time they have existed may have something to do with the production of such changes, but he thinks in general there is a remote connection between them. The loss of blood would also account for some of these changes. Thrombosis of veins is quite frequent. In writing up the subject of death from visceral disease after laparotomy, he has been surprised to find in the records of the Woman's Hospital so many of these changes, such as brown atrophy, fatty degeneration of the heart and renal disease.

Dr. Joseph Brettauer stated he does not attribute so much importance to the lesions of the heart that coexist with uterine fibroids. He appreciated, however, that loss of blood will develop hemic murmurs and degeneration of the heart muscle. He agrees with the others that heart lesions in women who

bleed profusely from uterine fibroids rather indicate than contraindicate their removal.

Dr. Brooks H. Wells does not think the presence of a small fibroid in the uterus has any marked effect in producing disease of the heart or arterial system, but that such lesions may be the result of the presence of any large abdominal tumor that changes the dynamics of the circulation. Most myofibromata occur, too, at an age when such cardiac or vascular lesions are common from other causes. Formerly when ergot was extensively used over long periods of time, he had frequently seen brown atrophy of the heart muscle, which he ascribed to ergot poisoning. At the present time it would be necessary to exclude as causes of such lesions rheumatism, sepsis in its many forms, continued anemia and other well known causes of vascular degenerations.

Dr. Clement Cleveland said he had always noted that heart lesions were often present with uterine fibroids and that he had always felt there was some direct relation between them. He thought the facts presented by Dr. Boldt ought to furnish additional evidence in favor of operation.

Dr. J. Milton Mabbott preferred to the opinion of Dr. T. G. Thomas that fibroids in colored women were generally unimportant. His own experience of fourteen years in the Out-Door Department of the New York Hospital had also shown this to be true. He thought in many cases fibroid tumors must exert a reflex influence through the central nervous system and thus have a deleterious effect on the general health, rendering the patient more prone to disease of the arteries, heart and kidneys.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, held November 13, 1905.

The President, T. E. Satterthwaite, M.D., in the Chair.

SYMPOSIUM OF CLINICAL PATHOLOGY.

The Relation of Clinical Pathology to Actual Practice.—This paper was read by Dr. L. F. Bishop. The problem, he said, was to make clinical pathology available to the men who actually do the bulk of the practice of the city. Clinical pathology has been too much in the position of a consultation branch rather than a help in every-day work. Too many men call in technical examination only when the case seems obscure or when the patient is very ill. The most obvious solution of the problem which immediately presents itself to any man is that he should take a course in laboratory work and then make a practice of carrying on these observations for himself. But the practice of medicine is too complicated an occupation to allow of the proper atmosphere for laboratory work. There is too much of the social and personal required to allow the combination of the two kinds of work by the general practitioner. The most successful men from the point of view of having satisfactory practices are those who concentrate most of their attention upon the treatment of their patients, keeping other matters in the background. As it is practically impossible for these men to do clinical pathology themselves, they have fallen into the habit of neglecting it, except in cases where it was evidently important, and then sending a specimen or two to an eminent authority for an opinion. The

whole procedure is too expensive to be employed in a routine way with all the patients. To do this for all his patients it is necessary for the physician to obtain the cooperation of men who have neither the height of reputation as pathologists nor attained the position of established practitioners. Such men are found in these days among the graduates of our hospitals, particularly those who have had a pathological service. Up to the present the relation of clinical pathology to private practice has not been satisfactory, and the remedy for this condition of affairs is to be found, first, in disseminating among practitioners the knowledge of the actual value of the findings of the laboratory in indications for treatment; second, in building up the confidence of the profession in the work of the younger graduates of hospitals and in separating routine work, such as these men are perfectly capable of doing, from the higher class of work which calls for the expert knowledge and opinion of established specialists in clinical pathology.

Laboratory Aids in the Diagnosis of Disorders of the Digestive Tract.—Dr. E. E. Smith read a paper with this title. He said he would not attempt a systematic presentation of the whole subject, but rather content himself with a discussion of such isolated facts as seemed of special interest. A word of precaution was necessary in connection with the diagnosis of diphtheria. When the morphology was typical, the diagnosis from serum cultures is quite conclusive. Occasionally, however, it happens that the procedure is uncertain, and he mentioned a case of supposed diphtheria which proved to be one of syphilis. Fortunately in cases such as this we have other aids to diagnosis, namely, the examination of smear preparations made directly from the ulcerated surface. At least two diseases are differentiated from true diphtheria by a competent examination of such material—Vincent's angina, by the recognition of the characteristic fusiform bacilli, and syphilis, by the recognition of the *Spirocheta pallida*. It is as yet too early to say with certainty that this last organism is the cause of syphilis, but so far, at least, a knowledge of its presence seems to afford considerable aid to the bacteriologist. The examination of the stomach contents, either vomited, obtained in gastric lavage, or removed after a suitable test-meal, is of unquestionable value, and should be more generally practised, especially in chronic gastric disease. In this connection Dr. Smith spoke particularly of cases of persistent vomiting due to a condition of acid-intoxication. In these the associated clinical manifestations may be varied, but the occurrence of attacks of vomiting, usually lasting several days, is constant. In such cases the attacks may be prevented by a proper dietary and aborted by the heroic use of alkaline medication. Riegel has emphasized the value of differentiating between the gastric conditions of hyperacidity, alimentary hypersecretion and continuous hypersecretion; the differentiation being made from the amount of stomach contents removed after the test breakfast, its acidity and the absence of gastric secretion during starvation. If the stomach contents, after the test breakfast, is not increased in volume (that is, two ounces or less in quantity) and constantly, or even generally, has an excessive hydrochloric acidity (say 70 or more), the condition is one of simple hyperacidity, usually readily amenable to treatment. If, on the other hand, the volume is increased (and this increase usually carries with it an increased

hydrochloric acidity), it is important to determine whether the increased flow is simply alimentary or is continuous, occurring independently of the stimulating action of food. It is not to be expected that every patient with acid stomach shall be subjected to the searching methods referred to, but in cases where even an approach to scientific exactness is claimed, the analysis of the gastric contents is certainly imperative, even if the clinical symptoms are not pronounced. Most physicians make much of the microscopical examination of patients' stools, but relatively few realize the value of extending the examination further. The microscopical examination of this material, however, may well have a place in routine practice. Examined directly, it rarely shows the presence of pathological admixtures unappreciated by the naked eye, but it may reveal the presence of a parasitic invader, either directly or from the ova. Dr. Smith always examines a portion of the feces stained with iodine, and finds that it is of considerable value in acute or subacute disturbances to know of the presence of the blue-staining butyric acid bacillus, since in these cases antiseptics by the aid of acetozone, both by the mouth and high enema, is of unquestionable value. Special bacteriological examinations are also undertaken with profit, notably the isolation of the typhoid bacillus, which is proving of diagnostic value. A procedure which has attracted much attention of late is the recognition of the so-called occult blood in the feces. By means of a delicate chemical test it is possible to detect blood so modified by the gastrointestinal processes that it cannot be recognized by the microscope. Occult blood has the same significance as visible hemorrhage. It is constantly present in cancer and intermittently in ulcer, while it is absent in gastritis, hyperacidity, hypersecretion and the gastric neuroses. Its occurrence is an aid in the diagnosis of a suspected typhoid, and, aside from the diagnostic value of the test, it is useful in indicating the therapeutic action of remedies in gastric ulcer. Having advocated the examination of bile, where it is available, he said in closing that he would like to emphasize the importance of the histologic examination of all suitable material, whether connected with the alimentary tract or from other parts of the body. Its diagnostic value is at times unexpectedly considerable. Thus, in a series of examinations of appendices recently reported at the Pathological Society, five per cent. revealed the existence of primary carcinoma, a condition usually regarded as rare.

The Present Attitude of Blood Examination for Diagnostic Purposes.—Dr. F. E. Sondern read a paper on this subject. The evolution of hematology during the last decade, he said, has been so pronounced that at the present time an accurate knowledge of the blood condition is considered essential in the diagnostic and prognostic conclusions in all but the most trivial cases. To-day simple anemia, pernicious anemia, splenic anemia and Hodgkin's disease can be differentiated with greater precision than the former less accurate knowledge of the blood changes allowed. In the different forms of acute and chronic leucemia recent work has taught much and justifies dissatisfaction with the present clinical classification of these conditions. Acute lymphatic leucemia, as well as the recently described acute myeloid form of the disease, present a clinical picture simulating an acute infectious process, and it is by means of the routine blood examination that

the differential diagnosis is now most frequently made, improper surgical procedures prevented and the fatal prognosis learned at the earliest possible moment. In acute febrile conditions, when the clinical picture is not yet sufficiently pronounced to justify a diagnosis, a routine examination of the blood is often a guide and always a comfort. This examination shows the degree of anemia, if any, and a search for plasmodia, a Widal test, an enumeration of leucocytes and a differential count of the latter, while they may not establish the diagnosis, at least confine it within narrow limits and often exclude grave conditions feared. In malaria the increase in the relative number of large lymphocytes is an additional stimulus to repeated search if plasmodia are not found at once. In the event of coma the knowledge that meningitis and brain abscess are always accompanied by a leucocytosis and relative polynuclear increase, that uremic, post-epileptic and diabetic coma sometimes show leucocytosis, and that narcotic or alcoholic poisoning, hysteria and tumor have no accompanying leucocytosis is also of diagnostic value when combined with clinical observation. The pronounced leucocytosis and relative polynuclear increase always met with in scarlet fever may be of diagnostic value in the early stages of that disease. While the anticipation of early diagnosis in typhoid fever from the Widal serum reaction has been but partly fulfilled, owing to the delayed response to this test in many cases, the fact that uncomplicated typhoid shows no leucocytosis and a relative lymphocytosis on differential count of leucocytes is an aid not to be overlooked. In pneumonia a consideration of the blood picture is often of the greatest value in both diagnosis and prognosis. In central pneumonia and in other cases where the general symptoms are present but the physical signs indefinite, the existence of a pronounced leucocytosis often justifies the diagnosis. As to the prognosis, the increase in the relative number of polynuclear cells is a direct indication of the severity of the toxic infection and the degree of leucocytosis an absolute indication of the body resistance toward the infection. As regards surgery, the arbitrary rule, that no operation is to be undertaken when the percentage of hemoglobin is below 30, should no longer adorn our text-books. The chlorotic girl with 30 per cent. of hemoglobin, 4,500,000 red cells, a normal leucocyte count, and perhaps a slight relative lymphocytosis on differential count, is certainly in much better condition to withstand an imperative operation than the case of secondary anemia with 50 per cent. hemoglobin, but only 2,000,000 red cells, a marked leucopenia and a high relative lymphocytosis. One of the most important spheres of usefulness of blood examination in surgery is its value as a guide to the existence and severity of an inflammatory process, to the presence or absence of a purulent exudate and to the resistance offered by the economy toward the toxic infection.

Some Recent Advances in Urinology.—The last paper of the evening was by Dr. Louis Heitzmann on this subject. In the course of it he said that one of the reasons why the routine microscopic examinations of the urine so often proved unsatisfactory was because low powers were employed. Under high magnifying powers it could not infrequently be discovered that what were supposed to be tube-casts were not true casts at all. He also spoke of the advantages of cystoscopy. By means of ureteral catheterization the urine from the two kidneys could

be obtained separately, and an examination of the two urines might show that one of the kidneys was much more seriously diseased than the other. He mentioned a case of this kind where in this way it was demonstrated that one of the organs was affected with suppurative nephritis, while in the other there was only a mild interstitial nephritis. He urged strongly against an operation, stating that in his opinion it would prove fatal. The operation was performed, however, and the patient died an hour afterwards.

Advantages and Fallacies of Renal Work.—Dr. E. C. Savidge said that greater freedom of laboratory work has given him (1) renewed faith in certain forms of therapeutics; (2) an almost iconoclastic conviction that we have been making errors after certain laboratory findings; (3) and of greater importance, an insight into conditions which have proved themselves to be observable long before there are laboratory findings. In other words, the laboratory is both confirmatory and non-confirmatory. It clarifies as much by what it does not tell as by what it does tell. These conclusions are to be explained in this way: (1) In almost all patients over forty who put the tension of concentration on their vaso-motor system, faint traces of albumin can be found in the urine, if it is examined often enough. (2) Certain forms of therapeutic means can vary the specific gravity, the output of urea, can compass the solution of irritating crystals which point to sure future trouble, can, in relaxed venous cases, even remove albumin by enhancing the tonicity of the veins. (3) Having thus, by repeated laboratory use, seen the relation between arterial tension and the output of urea, between venous tonicity and albumin, between specific gravity and the appearance and disappearance of hemoglobin, the following conviction has grown in his mind: Varying these conditions will vary the laboratory findings. Also, the conditions may exist and be perfectly observable some time before the laboratory will give any findings. There is, therefore, it would appear, a renal physiognomy, which can thus be early recognized, even while the laboratory reports normal urine. Frequent laboratory access, therefore, will teach, through the interrelations there learned, how much we can do before the laboratory itself is able to speak.

BOOK REVIEWS.

ANATOMY, DESCRIPTIVE AND SURGICAL. By HENRY GRAY, F.R.S. New American Edition, thoroughly revised and edited by JOHN CHALMERS DaCOSTA, M.D., Professor of Principles of Surgery and Professor of Clinical Surgery in Jefferson Medical College, etc. Lea Brothers & Company, Philadelphia and New York.

THERE are few physicians in the United States who have not heard of Gray's Anatomy. It has been for many students the cause of anxious nights and working days, yet perennially new crops of aspirants work over its pages with all the energy of a gold miner; and not without results, for the subject of anatomy is not a worn out placer mine, but an inexhaustible vein.

It might seem as though Dr. DaCosta has had set before him a thankless task in revising a work which has for so many years been crystallizing and assuming a stable form, but it is greatly to his credit and shows marked critical acumen as well as anatomical sense

that he has been able to infuse into the Gray of to-day a thoroughgoing scientific spirit in harmony with the movement of the times. Not only has he kept Gray's Anatomy, as in the days of yore, a work of transcendent importance to the student, but he has been able by his surgical sense to introduce into it features that will render the work of service to the graduate and the practitioner of many years' standing. It would be impossible to pick out in the brief space of this review the thousand and one little things which his eyes have seen and his imagination grasped as of pedagogical importance, but we cannot leave the subject without expressing our appreciation of the excellent work that has been done in the discussion of the lymphatic system, a subject which has been heretofore too much neglected in our standard works on anatomy. A liberal taking over of the researches of Charpy and Testut has tended to illuminate the chapter in a striking manner, and it cannot fail to win approbation from the practical surgeon as well as from the anatomist. In one important regard it might be said that the book has practically been made over new, and that is in the matter of the illustrations. The old hackneyed wood-cuts have not all disappeared, but fortunately they represent a very small proportion of the illustrations in this edition. It almost makes one feel as though he would like to enter scholastic fields once more and with the aid of this new edition restudy his anatomy. Surely no higher praise for a work of this general character could be desired.

DIABETES MELLITUS: Its Pathological Chemistry and Treatment. Lectures delivered in the University and Bellevue Hospital Medical College, New York Herter Lectureship Foundation, Part VII of Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Professor Dr. CARL VON NOORDEN, Physician-in-Chief in the City Hospital, Frankfurt-a-M. Authorized American Translation. Edited by BOARDMAN REED, M.D. E. B. Treat & Company, New York.

THESE lectures on diabetes were delivered to limited audiences in New York, though their subject-matter is such as to interest the profession extensively. There is no doubt that they will be widely read, for they represent the last word on this important subject. Besides, Dr. von Noorden, unlike many who treat of the disease of metabolism, has a much more hopeful and, therefore, helpful way of looking at them than others. His prognosis in diabetes mellitus is not nearly so pessimistic as used to be thought necessary, and his suggestion as to methods of treatment have that detail which make them of special value to the practitioner of medicine. There is not a single question with regard to temporary and permanent glycosuria that is not illuminated in this little volume which contains so much in its 200 pages.

A MANUAL OF ORGANIC MATERIA MEDICA AND PHARMACOGNOSY. By L. E. SAYRE, B.S., Ph.M. With Histology and Microtechnique, by WILLIAM C. STEVENS. Third edition. P. Blakiston's Son & Co., Philadelphia.

IN this, the third edition, Professor Sayre has given, particularly for students of pharmacy, a very excellent manual. For the student of medicine or practitioner it is not adapted, as the pharmacology and therapeutics are very inadequately treated. The student of medicine will find it very useful, however, from the standpoint of pharmacognosy in its wider sense. For this it is truly excellent: The chapters on microtechnique and histology have been amplified and are truly excellent.

IMMUNITY IN INFECTIOUS DISEASES. By ELIE METCHNIKOFF, Professor of the Pasteur Institute, Paris. Translated from the French by FRANCIS G. BINNIE. Cambridge University Press. The Macmillan Co., New York.

METCHNIKOFF's researches on the subject of Infection have been classic for thirty years, and it is interesting in this beautifully gotten up and well printed volume to trace the evolution of the ideas of one of the leading pathologists of the scientific world on the subject of the conflict between man and his microbic enemies.

The doctrine of phagocytosis has traveled a long distance from the point of its departure as first brought out by Metchnikoff himself. It has grown broader and fuller, but has still maintained its general outlines as laid down by him years ago, and it is particularly a matter of congratulation to all English-speaking professional men that Metchnikoff's latest summary of his views should be so well presented. It is true that the French edition of this same work appeared in 1901, but enough has been included to bring it more or less up to the present time. Certainly Metchnikoff's contribution to the subject of immunity has all the charm of simplicity which is so conspicuously lacking in the complicated chemical and physico-chemical hypotheses of the German school. A recommendation of such a work would be superfluous, but we can remind those interested in the subject that in this volume they will find "the best that has been thought and said" upon it.

THE FOOD FACTOR IN DISEASE. By FRANCIS HARE, M.D., Late Consulting Physician to the Brisbane General Hospital, etc. In two volumes. Longmans, Green & Co., New York, London and Bombay.

THIS is certainly a strange book. Although couched in modern language it seems as though one were reading an ancient text, a copy of Charaka, perhaps, or some of the Arabian transcriptions of Hippocrates.

Starting with the reflection that modern science has been doing too much hair-splitting and not enough housebuilding, the author proposes to build a synthetic structure, all for himself, and quite like the home-made structures so aptly described by Oliver Wendell Holmes, it certainly looks like one.

A young and enthusiastic student of the laboratory will undoubtedly look over this work and say "rubbish." An older practitioner will acquire many a unique suggestion and much profit by looking through its pages, but we doubt if there is enough "pay dirt in it" to make it worth while. Furthermore, there is so much muddy logic throughout the entire work and such a straining after the erection of a hypothesis of "hyperemia" as the cause of all of the ills of the flesh that it is hard to read the author's conglomerate of observations, mostly clipped here and there and worked into a most confused magma, without a feeling that it seems such a pity with such energy that the work of the author might not have contained some of the fundamental analytical results that he has turned his back upon in his endeavor to be a synthetic philosopher.

CARBONIC ACID IN MEDICINE. By ACHILLES ROSE, M.D. With the portraits of von Helmont, Priestley and Lavoisier. Funk & Wagnalls Company, New York and London.

It is refreshing to find a volume like Professor Rose's. As a rule there is so little confidence expressed in therapeutic measures as to be rather discouraging. Dr. Rose, however, has had excellent results in the treatment of many and various affections by means of carbonic acid.

He has found it useful in affections of the lungs, such as asthma and emphysema, and in affections of the blood, such as chlorosis, which Dr. Rose, with characteristic verbal nicety, considers an incorrect term, preferring the designation chloriasis. It has given excellent results also in the treatment of dysentery and membranous colic. In whooping cough it has proved to be one of the long-looked-for remedies. It has been helpful in impotence and in some gynecological affections. Finally, rectal fistula has been promptly, completely and permanently cured by means of carbonic acid applications. Here is evidently a remedial measure hitherto little used that deserves investigation. Dr. Rose gives a short history of the use of carbonic acid in medicine.

ATLAS AND EPITOME OF DISEASES OF THE SKIN. By Professor DR. FRANZ MRACEK, of Vienna. Edited, with additions, by HENRY W. STELWAGON, M.D., Professor of Dermatology, Jefferson Medical College, Philadelphia. Second edition. W. B. Saunders & Company, Philadelphia and London.

DR. MRACEK's Atlas and Epitome of the Diseases of the Skin has met with a very favorable reception in America, having been reprinted no less than five times in its first edition. The present second edition contains a number of additions to the plates as well as the text, and there is no doubt that it will continue the popularity it has enjoyed. For those who consider these atlases as no more than ordinary collections of plates of skin disease it will be a matter of surprise to find how much of practical information with regard to diagnosis and therapeutics has been condensed into the 250 pages of text which precede the illustrations proper. It is this combination in handy form that has made this set of hand atlases so popular, and Dr. Mracek's is undoubtedly one of the best of the series.

HYSTERIA AND NEURASTHENIA. By J. MITCHELL CLARK, M.A., M.D., F.R.C.P. John Lane, London and New York.

DR. CLARK has here collected in convenient form a number of the contributions which he has made to periodical literature from time to time. Fortunately he has confined himself to the discussion of hysteria and neurasthenia, and has given us one of the best small manuals dealing with these affections. Traumatic hysteria and traumatic neurasthenia have been well considered, although much too briefly. When one considers the massive tomes of Binswanger and the careful work of Janet along such lines one cannot but feel that the author has not done himself justice by this desultory and fragmentary treatment of the subject. But it is to be remembered that the work is a student's handbook rather than a specialist's monograph. Viewed in the light of its proportions it is an admirable small manual.

THE DETECTION OF POISONS AND STRONG DRUGS. By DR. WILHELM AUTENRIETH, Professor in the University of Freiburg. Translated by WILLIAM H. WARREN, Ph.D., Professor of Chemistry, Medical Department of Washington University, St. Louis, Mo. P. Blakiston's Sons & Co., Philadelphia.

THIS is an invaluable small manual for anyone who would pursue qualitative analysis into the fields rarely entered by the ordinary student of chemistry, i.e., into the sphere of medical toxicology. It has been well translated, and as the laboratory directions are such that they can be followed out in a home laboratory, the work will prove of interest to the amateur as well as the professional.